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INSIDE DOPE

by GEORGE F. TAUBENECK

God Takes a Hand
Dr. New Deal Was a Quack
There Are Tides In Human Affairs
It Happens Every Day
The Long Pull
Recipe for Success
The Middle Pull

God Takes a Hand

One of the most arresting books to appear in a long time is "Cycles—The Science of Prediction," by Edward R. Dewey and Edwin F. Dakin.

This somewhat obtuse volume attempts to collect, correlate, synthesize, and popularize the many abstruse studies of cyclical phenomena and rhythms which have been examined by scientists the world over during the last four decades. (Definition of "cyclical phenomena": History repeats itself.)

It attempts to show that certain mysterious, radio-like *waves*—which are obviously beyond mankind's control—affect our daily lives, and dictate the course of national and international prosperity. Despite the authors' efforts to popularize their data, the book is difficult to read and follow—let alone believe.

Nevertheless, a conscientious study of this tome will be rewarding. It makes out an excellent case for the theory that a Higher Power intervenes in our puny struggles, and that Natural Law controls our destiny.

All the evidence is scientific. Yet, after reading the book, one concludes that there must be a God in Heaven who manages the universe.

When the writer was a boy he was subjected to the Baptist Church doctrine of "foreordination." Interpreted literally and strictly, this doctrine means that history has been written in advance; that somewhere in Heaven there's a pre-dated book which tells exactly what we're going to do and what will happen to us on each day of our lives. As a youngster, we regarded this notion with a jaundiced eye.

Naturally, like all individualists and devotees of the American Way, we rebel against the doctrine of foreordination and predestination. Any one of us likes to believe that he is the "captain of his soul," and the master of his fate. This self-confident assumption is a cornerstone of the Free Enterprise System.

Yet, scientists are slowly uncovering an immensely interesting deposit of predestination ore. From Freud to Einstein, the "pure" scientists of late vintage have been trying to tell us that things aren't what them seem—that we don't do what we want to do, but what we *must* do. More and more it would appear that we are creatures of circumstance, and puppets of Fate. Like automatons in a Punch-and-Judy show, we dance when strings are pulled by unseen Higher Powers.

Dr. New Deal Was a Quack

Any supporter of the Free Enterprise System, of liberty and individual freedom, will recoil from the notion that the sun's rays and the amount of ozone in the air might affect his personal fortunes or decisions.

Yet, the evidence is there—beautifully and convincingly demonstrated with charts and graphs and mathematical equations. This evidence is so compelling that it cannot be ignored.

On the other hand, the individualist will be cheered to learn that advocates of "planned economy" will be frustrated completely by the import

(Concluded on Page 6, Column 1)

Freight Rate Boost Could Up Appliances

NEW YORK CITY — The emergency 10% freight rate increase granted to the railroads recently by the Interstate Commerce Commission may cause list prices on major appliances to rise from $1 to $2, an executive of a large national appliance distributing organization here has declared.

Manufacturers will not be able to absorb the additional freight costs in cases where freight is prepaid and the distributor won't be able to when they aren't, he indicated.

"In the case of a refrigerator, unit freight costs will rise 50 cents for entire carloads," he explained. "The distributor who pays these costs will raise his price to dealers on a traditional mark-up basis.

"Dealers will then have to pay

(Concluded on Page 29, Column 4)

Mail Order Houses May Ask 10% Down

PITTSBURGH—Mail order houses will lower the down payment required on credit purchases to 10% when federal controls expire next month but retailers in general will stick to 20%, it was reported by Roscoe R. Rau, executive vice president of the National Retail Furniture Association.

Speaking to the Pennsylvania Retailer's Association, Mr. Rau quoted appliance manufacturers as saying that finance companies with which they are affiliated are not in favor of down payments lower than 20% or contracts longer than authorized at present.

I. D. Wolf, vice president of Kaufman's here, questioned the advisability of easier credit terms in view of his contention that manufacturers have radically different refrigerators and washing machines which they have not put on the market.

Mr. Rau said mail order houses will keep in force the current requirement of a $5 monthly payment, and, in some cases, the 15-month time limit. In other cases (including home heating and other equipment on which long-period loans are now authorized under FHA regulations), the consumer will be allowed 18 months, he disclosed.

Reg. W Will End Nov. 1, But Not Until Midnight

WASHINGTON, D. C.—Regulation W ends on Nov. 1, a Saturday, but not until midnight, cautions the Federal Reserve Board.

Sales under relaxed instalment terms, therefore, can't be made until Monday, Nov. 3, unless, of course, you want to open your store Sunday.

Dept. Stores Claim Lead As Frozen Food Outlets

SYRACUSE, N. Y. — In many cities, frozen food sales by department stores already exceed those of any other single retail outlet, William Burston, of Frozen Food Products, Inc., reported at the second annual meeting of Frozen Food Foundation, Inc., here.

The meeting was attended by representatives of 21 department store and manufacturing organizations in all parts of the United States and in Canada. They elected a board of trustees and officers and intensively

(Concluded on Back Page, Column 1)

Dealers Who Don't Want Franchises Say They're Supplying South's Need

By George M. Hanning

ATLANTA—Dealers unencumbered with franchises and allotments are doing the volume appliance business in the southeastern states today.

Able to get all the merchandise they want without a franchise, they feel no need for one.

As E. T. Shaw of Shaw & Co. in Knoxville, Tenn. stated, "I have had distributors in here offering me a franchise. But I don't want a franchise. I'm satisfied the way I am. I turned them all down."

Those unfranchised dealers interviewed were aggressive merchandisers. They knew the appliance business from long experience and they looked upon themselves as filling a recognized need in their communities.

They give the people, with money to buy now, the appliances they have wanted for so long; appliances which they could not get—and still cannot get without waiting for many months—from franchised dealers.

Take the case of Wayne's Lake Appliances just outside of Flowery Branch, Ga., about 40 miles northeast of Atlanta.

Paul Wayne and his three sons, Gene, Bob, and Bill, operate a gas station and new appliance store in an entirely rural area.

The tremendous growth in the demand for appliances in the South is perhaps largely responsible for the extensive "gray-market" operations in that area. The unfranchised dealers, who have plenty of appliances in stock for immediate delivery, contend they are supplying a recognized community need.

Before the war, the six counties surrounding them had a farm income that Bob Wayne estimated at about $500,000. Marginal cotton had been the principal crop.

Then chicken raising was introduced. The farmers found it profitable and adopted it on a grand scale. With the high demand for poultry products during the war and the continued high demand today, the farmers began to make money and are making good money today.

Concurrently, the Rural Electrification Administration invaded the area and brought electricity to the farms.

So now, those same six counties have an estimated farm income of $10,000,000. With all this money and

(Concluded on Page 4, Column 1)

Order-Taking Resumed By Washer Dealers

NEW YORK CITY—The current steel shortage has tossed the automatic washer business right back into its order-taking stages, several retailers here have indicated.

A few weeks ago, they said, supply was almost meeting demand. Since then shipments have dropped so sharply that dealers are accepting more orders for future delivery than they had been.

Vilter Co. Wage Agreement Keyed to Production Rise

MILWAUKEE—A wage agreement which provides for an expected increase in productivity of not less than 20% in the next six months has been concluded between the Vilter Mfg. Co. here and the A. F. L. Foundry union, the company has announced.

The agreement calls for a 15 cents per hour across the board wage increase. Besides, an arrangement has

(Concluded on Back Page, Column 5)

FTC-Super-Cold Suit Ends After 4 Years

WASHINGTON, D. C.—Last week the Federal Trade Commission cleared the Super-Cold Corp. of Los Angeles on practically all charges of misrepresentation in its advertising.

The case was bitterly fought for more than four years by Super-Cold, one of the industry's largest manufacturers of grocery and meat market refrigeration display cases. Hearings had been held in Los Angeles, San Francisco, Chicago, St. Paul, Niles, Mich., and Kendallville, Ind., and oral arguments were heard before the full commission at Washington a year ago.

The original complaint accused the Super-Cold Corp. of 38 separate charges of mis-statements appearing in dealers' brochures and salesmen's manuals. But the cease and desist order by the Federal Trade Commission supports only seven or eight of the original charges.

Several of these charges involved to a large extent statements which appeared in old literature discontinued or changed before the com-

(Concluded on Page 4, Column 5)

More Aggresive Selling by Retailers Urged at Electrical Leagues Convention

ST. LOUIS—"It's time to get out and sell" was the general theme prevailing when members of the International Association of Electrical Leagues convened at Hotel Statler here Oct. 8 to 10.

The meeting opened with a welcome to St. Louis by S. C. Sachs, president of the St. Louis Electrical Board of Trade, and a keynote talk "Everything Has to be Sold" by W. G. Hills, president of the group.

First-day speakers were Merrill E. Skinner, director of sales of the Union Electric Co., St. Louis, on "Selling the Electrical Industry to the Public" and C. G. Pyle, managing director of the National Electrical Wholesalers Association on "We Are One Industry."

Other speakers took up planned lighting and electrical living, and the organization of electrical associations, adequate wiring, personnel improvement, etc.

Top speaker at the Thursday morning session was J. A. Morrison, managing director of the Electrical Association of Philadelphia, whose topic was "The Kitchen and Laundry Planning Center." Mr. Morrison described in detail the planned kitchen and laundry displays which have been set up in the Edison Building in combination by the Philadelphia Electrical League and the local utility.

Pointing out that model kitchens and major kitchen appliances cannot be sold until the public can get some definite idea of the advantages they carry, Mr. Morrison indicated the plan whereby the Philadelphia organization will present a "kitchen of the month" each month for display, promotion through folders distributed by Philadelphia banks, miniature model kitchen displays in bank lobbies, etc.

He described three kitchens which will be included in the Kitchen Planning Center, including a "Philadelphia kitchen, small kitchen, and a deluxe kitchen series."

The model kitchens will be changed

(Concluded on Page 29, Column 1)

Nema's August Sales Slip To 213,901 Total

8-Month World Sales of 11 Refrigerator Mfrs. Amount to 1,968,792

NEW YORK CITY—World sales of household electric refrigerators by the 11 manufacturers who report their sales to the household Refrigeration Section of Nema totaled 213,901 in August, a substantial drop from the 277,700 units reported in July.

Total world sales by these manufacturers was brought up to 1,968,792 for the first eight months of the year.

More than half of the refrigerators sold so far this year are in the 7-cu. ft. size, the total sales in this classification being 1,148,645. The 9 and 10-cu. ft. sizes rank second with 359,282; 8 cu. ft. third with 246,869; and 6 cu. ft. fourth with 200,323.

Foreign sales in August included 987 to Canada and 13,913 in other countries. Total U. S. sales for the month were 199,001, these manufacturers reported.

Los Angeles Ruling Hits Case Lights

LOS ANGELES — Corrective devices to increase the power operating factor on fluorescent or other gaseous tube lighting must be installed in accordance with a ruling of the City of Los Angeles.

"We find many display and refrigerated cases being sold and installed in this area which are still using the low power factor auxiliaries," declares H. N. Lewman, power factor administrator, business agent's division, of the municipal Department of Water and Power here.

Buyers of such cases "are being greatly inconvenienced by the necessity of power factor correcting these cases," he states.

"Gaseous tube lighting, including the fluorescent type, is in many cases a low power factor load," declares Mr. Lewman. "As this type of load increases, system power factor and

(Concluded on Page 29, Column 4)

New Factory Alterations Herald Norge Expansion

DETROIT—The Norge division of Borg-Warner Corp. has embarked upon an expansion program which will increase production facilities substantially, it was announced by Howard E. Blood, president of the division.

According to Mr. Blood, the major step in the plan is being made in the company's Effingham, Ill., plant where gas and electric ranges are manufactured. However, output facilities in the Norge Herrin, Ill., and

(Concluded on Back Page, Column 3)

IN THIS ISSUE

. . . . The owner of the first residential heat pump installation in the south reports satisfaction, Pages 8, 9

. . . . Trends and problems in open refrigerated cases are aired, Pages 14, 15.

. . . . Hotels offer a good market for lots of refrigeration equipment, Page 12.

. . . . Evaporative condenser helps cut the heat load on a locker plant, Pages 22, 23.

Westinghouse Head Blames High Federal Spending For Inflationary Prices

SUNBURY, Pa.—"If we wonder why prices have reached the stratosphere, we need look no further than the 25% of our all-time-high national income which we pay for the extravagances as well as the privileges of our form of government," Gwylim A. Price, president of Westinghouse Electric Corp., told the Pennsylvania State Chamber of Commerce.

Mr. Price said the Government could help reduce costs and prices and stimulate production by curtailing its own cost of operation.

"Our Government has done practically everything, by word and deed, to restrict production, to intensify shortages, and consequently to send prices skyrocketing," he added.

During his talk, Mr. Price asked that manufacturing firms be exempted from the Pennsylvania State capital stock tax.

Jensen Is Bendix Asst. National Service Mgr.

SOUTH BEND, Ind. — Alfred L. Jensen, member of the Bendix Home Appliances, Inc., service department staff for 10 years, has been appointed assistant national service manager.

Alfred L. Jensen

As a service supervisor before the war, he served in the Kansas City and Dallas territories. In the home office since, he conducted the first postwar service training schools, organized and supervised subsequent national and regional schools and helped author service manuals on the Bendix automatic washer, dryer, and ironer.

A graduate of Illinois Wesleyan, Mr. Jensen formerly was a service supervisor for the General Household Utilities Co., Chicago.

Nebraska Utility Maps Reduction In Power Use

LINCOLN, Neb.—Because a shortage of power-plant capacity is not expected to be relieved before 1949, Consumers Public Power District is drawing up plans for curtailing electrical loads.

The district has already asked domestic users to cut down on consumption during this winter's peak periods between 4 and 7 p.m. Similar action will be requested during the summer and winter peaks of 1948.

Electrical usage in Nebraska has far exceeded that of the war period, the district explained, and further increases are anticipated. Consequently, the combined generating capacity of the Nebraska Public Power System, the Omaha Public Power District, and Consumers is and will be severely taxed.

It is expected that new generating equipment, unavailable during the war will be installed in 1949 boosting capacity by an estimated 105,000 kilowatts.

Nema Sales for August and First Eight Months of 1947

Complete Refrigerators Only
(Lacquer and Porcelain Exterior Cabinets) (Advertised sizes)

AUGUST

	Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total
1.	Less than 4 cu. ft.	433	....	....	433
2.	4 cu. ft.	15	....	18	33
3.	5 cu. ft.	....	....	....	....
4.	6 cu. ft.	17,751	....	1,238	18,989
5.	7 cu. ft.	122,398	697	9,978	133,073
6.	8 cu. ft.	19,424	132	1,085	20,641
7.	9 and 10 cu. ft.	38,980	158	1,594	40,732
8.	11 and 12 cu. ft.	....	....	....	....
9.	13 cu. ft. and up	....	....	....	....
10.	**Total**	**199,001**	**987**	**13,913**	**213,901**

FIRST EIGHT MONTHS

	Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total
1.	Less than 4 cu. ft.	1,417	....	12	1,429
2.	4 cu. ft.	9,778	1	2,461	12,240
3.	5 cu. ft.	....	....	....	....
4.	6 cu. ft.	188,303	854	11,166	200,323
5.	7 cu. ft.	1,066,379	7,061	75,205	1,148,645
6.	8 cu. ft.	235,903	890	10,076	246,869
7.	9 and 10 cu. ft.	341,208	1,002	17,072	359,282
8.	11 and 12 cu. ft.	....	....	....	....
9.	13 cu. ft. and up	4	....	....	4
10.	**Total**	**1,842,992**	**9,808**	**115,992**	**1,968,792**

Participating companies: Admiral Corp.; Crosley Div., AVCO Mfg. Corp.; The Coolerator Co.; Hotpoint, Inc.; Frigidaire Div., General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Nash-Kelvinator Corp.; Norge Div., Borg-Warner Corp.; Seeger Refrigerator Co.; Westinghouse Electric Corp.

Nebraska-Iowa Electric Meeting Opens Oct. 20

OMAHA, Neb.—More than 500 members of the electrical industry in this area are expected to turn out for the second annual conference and trade exhibit of the Nebraska-Iowa Electrical Council at Hotel Paxton here, Oct. 20, according to J. J. Dore, the Council's managing director.

Based on the theme, "The Job Ahead," the conference will include lighting and rural electrification presentations and discussions of credits and finances, merchandising and selling, and electrical interdependence. Question and answer periods will follow all presentations.

Also on the program is a noon luncheon meeting, a social hour in the late afternoon, and a banquet in the evening. The sound film, "Singing Wires," will be shown at the luncheon meeting. George F. Taubeneck, editor and publisher of the NEWS, will be the principal speaker at the banquet.

All types of electrical apparatus and devices are to be displayed in the trade exhibit conducted by the manufacturers division.

Cornelius Co. Agent Named

MINNEAPOLIS — James D. Bain has been appointed disbursing agent for money deposited by the Cornelius Co. under an arrangement worked out at a recent hearing, announced George A. Heisey, referee in bankruptcy in the U. S. District Court.

Morton-Gregory Begins Organization As New Detroit Appliance Mfr.

DETROIT—Morton-Gregory Co., a newly-organized Detroit firm, announces that it expects to start manufacturing electrical appliances involving the large-scale use of Fiberglas yarns and other new materials within six months.

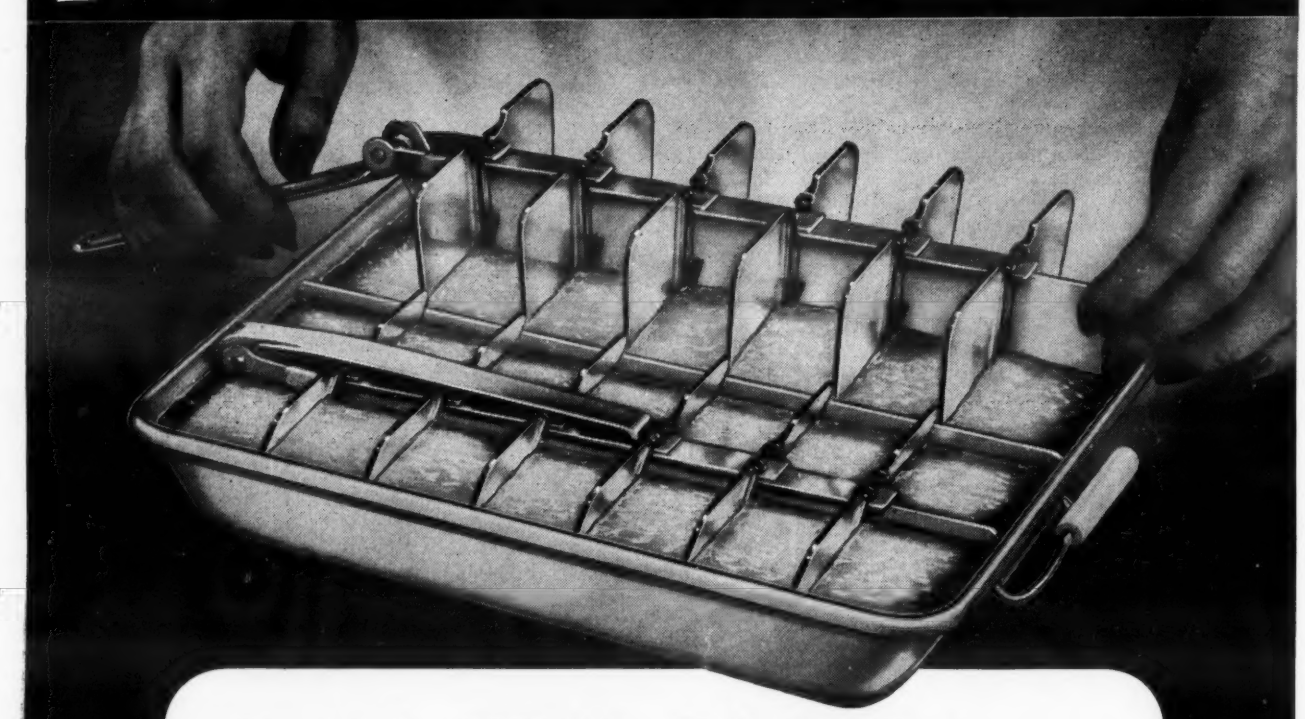
The company did not further describe the appliances, except to say they were developed by a group headed by Henry J. Morton. Mr. Morton is a consulting electrical engineer and president of Henry J. Morton Associates, Inc., Detroit electrical appliance concern.

Plant location has not as yet been determined, although a spokesman said it probably would be in or near Detroit or Toledo. Tooling is scheduled to begin as soon as a site is decided upon.

The spokesman said no other details of the new company's plans could be released as yet because organization structure is still incomplete.

George E. Gregory resigned as vice president of Owens-Corning Fiberglas Corp. to become president of Morton-Gregory. One of the original pioneers in the commercial development of the corporation, Mr. Gregory came to Owens-Corning from Corning Glass Works in 1938. He became successively general sales manager, director of sales, and then vice president.

1 TRAY SERVES 3 WAYS!



Double Width-Triple Duty
INLAND DESSERT TRAY

Inland Dessert Tray and Separator available as shown with grids having pastel-tinted plastic partitions; or aluminum partitions of various designs. Pan Lifter is optional.

Here's a single ice cube tray that gives extra-efficient, multi-purpose performance! The double width Inland Dessert Tray performs these three important ice tray functions.

1. FREEZES double the number of ice cubes because it contains double grids with the handy separator between. The ice cubes can be quickly released . . . full sized and dry.
2. MAKES an ideal freezer for all types of desserts and salads when the grids have been removed from the metal pan.
3. STORES frozen food, meat, fish, fowl, game, vegetables, ice cream and other perishables.

This all-around efficiency makes the Inland Dessert Tray a favorite with people everywhere. Find out more about this remarkable ice cube tray.

For full particulars and prices write to

INLAND MANUFACTURING DIVISION, General Motors Corp., Dayton, Ohio

FAST FREEZING
QUICK RELEASING
ICE TRAYS BY INLAND MANUFACTURING
INLAND

The STANDARD Reference Manual on REFRIGERATORS and FREEZERS

• Arranged and indexed for quick reference.
• All appraisals have been revised to reflect current market factors.

Use the Standard Manual to identify and evaluate every refrigerator and freezer accurately.

NEW 1947-1948 EDITION NOW IN PRESS!

- More than 1150 photographs
- More than 3300 model specifications
- Authentic trade-in valuations for all household refrigerators marketed since 1928
- Operating data on Merchandising, Promotion, Reconditioning

Bookbound in washable green cloth—320 pages. Pocket Size—4¾" x 6¼". Price—$6.00

NOTE — A limited quantity of current (1946) edition still available for immediate delivery

STANDARD REFRIGERATOR TRADE-IN MANUAL CO. 503 W. 43rd St., N. Y. 18, N. Y.

Please enter my order for_____copies of 1947-1948 Manual @ $6.00 each.

Please send me at once_____copies of 1946 Manual @ $5.00 each.

NAME_____

STREET ADDRESS_____

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Check or Money Order enclosed ☐ *Bill us per enclosed purchase order* ☐

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Cut Equipment Costs in Half!

Get 500-CARTON CAPACITY IN THE NEW 12-CUBIC FOOT FRIGID-FREEZE FROZEN FOOD & ICE CREAM CABINET

MODEL NO. G-746

REMOVABLE THERMOPANE SLIDING DOORS

Removable for peak periods, replace for full temperature protection at other times.

LOOK AT THE SIZE!

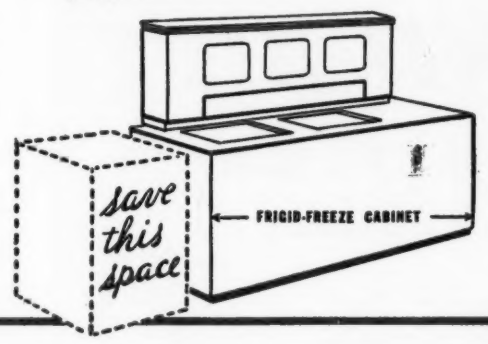
MEASURE THESE FACTS—FOR EXTRA PROFITS!

Fact 1. Fits into 6 ft. space—not 8 or 9 ft.

Fact 2. Holds 500 cartons—same as larger units.

Fact 3. Costs only ½ as much as larger units.

Fact 4. Use space & money saved for other purposes.

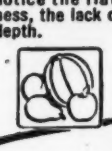


LOOK AT THE PRICE!

Exclusive!

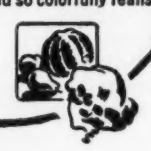
3-DIMENSIONAL DISPLAY Magic

Here's a drawing of some fruit in 2 dimensions—notice the flatness, the lack of depth.



Remember stereopticon slides of your childhood? 2 identical pictures were viewed through a special lens which gave them a realistic roundness and depth...a 3rd dimension.

Like stereopticon views, 3-dimensional pictures add a third dimension which makes you want to reach right out and pick the fruit, it's so life-like and so colorfully realistic.



Plus:

- ILLUMINATED PRODUCT STRIPS, PRICE MARKERS
- STAINLESS STEEL TOP
- DOUBLE-BAKED DULUX ENAMEL FINISH
- HERMETICALLY SEALED COMPRESSOR UNIT

RETAIL PRICE

$549

IMMEDIATE DELIVERY

$699 with SUPERSTRUCTURE

5-year warranty on hermetically-sealed unit... $5 extra included in every sale. Subject to regular dealer and distributor discounts

F. O. B. Perth Amboy, N. J.

Ideal for Small Stores . . . or Smaller Spaces in Large Stores

How many cabinet sales have you lost just because a customer couldn't squeeze an eight-foot cabinet into a six-foot space? Why not *call back* on these prospects with the new Frigid-Freeze "in-between size" model (12.4 cu. ft.)...and *win back the sale.* Only slightly over 6 feet long, it holds 500 cartons...*the same capacity as many average larger-sized cabinets!* There's a rich market waiting for you in the small stores...and in the large stores that will welcome new ways to put all their space to most profitable use!

THE LOW PRICE WILL MOVE 'EM FAST! Ruggedly built, beautifully designed, this sales-wise frozen food and ice cream cabinet is realistically priced to meet competitive selling head-on. Only the wide engineering experience and mass production economies of the Refrigeration Corporation of America make possible the amazing value built into a top-quality cabinet selling at the low price of $549! And only Frigid-Freeze can offer the exclusive, distinctive looking superstructure that features full color, life-like 3-Dimensional food pictures! Cabinet and superstructure together cost only $699...*less than half the cost of many larger-sized cabinets with equal storage capacity!* That's a sales-clinching argument for you, isn't it?

3-DIMENSIONAL FOOD PICTURES...COLORFUL...LIFE-LIKE...SALES-STIMULATING. There's never been anything like them before. Three full color, eye-catching frozen food pictures, softly lighted from behind, put new merchandising magic into lagging sales. They catch the customer's eye...she's tempted ...she buys! 3-Dimensional pictures of *life-like depth* make the most tempting lure ever placed before the American housewife. Their undeniable *eye-appeal* provides an impulse-sales-punch that plays a merry tune on the cash register. Exclusive with Frigid-Freeze, they offer the most revolutionary forward development in the promotion of frozen food and ice cream. Your customers will soon discover why "one 3-Dimensional picture is worth a thousand sales!"

RUGGEDLY DESIGNED, SOUNDLY ENGINEERED, 5-YEAR WARRANTY. The Frigid-Freeze cabinet is built for a lifetime of unmatched performance. It is soundly constructed of heavy gauge sheet steel, with all joints electrically welded and vapor sealed. Insulation is approved government standard. The entire cabinet is finished in durable, double-baked DuLux white enamel over bonderized, rust-resistant steel. The top is of stainless steel insuring a consistently clean, attractive appearance. The superstructure harmonizes with the cabinet design, and is strongly built with metal trim re-inforcement. Included with the superstructure are 3 standard 11" x 14" full color 3-Dimensional food pictures, easily replaced and fully illuminated. Additional pictures at low cost are optional. Space is provided for 25 individual product strips and price markers which are illuminated from above, for high visibility without glare. Compressor unit is hermetically sealed and economical to operate, using 110 volt, 60 cycle, Single Phase, A.C. Standard Freon 12 is the refrigerant used. The 5-year warranty on the unit assures customer satisfaction. Selective control assures quick-freezing or storage temperatures at the flick of a wrist.

Yes, sir—the new Frigid-Freeze 12.4 cu. ft. cabinet is PACKED with features—it's PACKED with sales-appeal—and it's priced to sell!

ORDER BY WIRE OR MAIL NOW...FOR IMMEDIATE DELIVERY! Here's the cabinet your customers want...at the price they want to pay! Don't wait to order, get those sales on your books right away! Get the jump on competition and sink your teeth into some new, welcome profits. For IMMEDIATE action and IMMEDIATE delivery, use the handy coupon below!

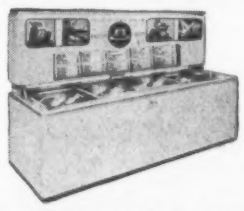
A FEW DISTRIBUTOR AND DEALER TERRITORIES STILL OPEN

Look to Frigid-Freeze for such sensational contributions to frozen food and ice cream merchandising as the "3-Dimensional Display Superstructure" and the "Spot-Special Cabinet-on-Wheels."

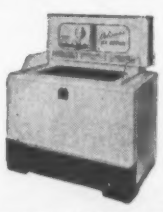
Sell the *full Frigid-Freeze line* and you will have a "family" deal that will pay off in handsome profits.

Frigid-Freeze products are backed by localized cooperation for a mutually profitable development of every territory. Fill in coupon below for our dealer or distributor proposition, indicating which you are interested in and what territory you cover.

Below are just a few examples of the value and sales-appeal built into the Frigid-Freeze line. Models shown are available for IMMEDIATE DELIVERY.

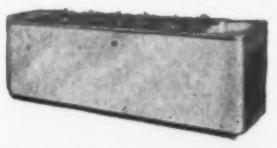


FRIGID-FREEZE 20.2 CU. FT. FROZEN FOOD CABINET (G-1046)—Features 3-Dimensional superstructure, illuminated product and price strips, removable Thermopane sliding doors.



FRIGID-FREEZE "SPOT-SPECIAL"—A mobile, open-top cabinet that is setting new frozen food sales records. Can be wheeled to new locations daily, to fit smart merchandising plans.

FRIGID-FREEZE ALL-ALUMINUM WALK-IN—Unequalled in price or performance, 6 standard sizes from 160 to 730 cu. ft. Prefabricated, easily erected in a few hours.



FRIGID-FREEZE 8- AND 12-HOLE ICE CREAM CABINETS—The outstanding ice cream cabinet in the field with exclusive Frigid-Freeze improvements. Also 4- and 6-hole models.

SPECIFICATIONS: Model G-746. Capacity 12.4 cu. ft. Overall height 61⅛"; length 74⅝" at base, width 29¼"; Superstructure 29¼" high, 72⅜" long, 8" deep. Superstructure contains three 11" x 14" 3-dimensional food pictures. Removable Thermopane glass doors. Hermetically sealed compressor unit.

Pioneers IN LOW TEMPERATURE REFRIGERATION

REFRIGERATION CORPORATION of AMERICA

Frigid Freeze — A NOMA PRODUCT — REFRIGERATION CORP. OF AMERICA

A DIVISION OF NOMA ELECTRIC CORP.

Executive Sales Offices: Barber Sta., Perth Amboy, N. J.
Factories: Perth Amboy and Arlington, N. J.

WIRE US RIGHT NOW
(OR USE THIS HANDY COUPON!)

Refrigeration Corporation of America
Barber Station, Perth Amboy, N. J.

☐ Enter my order for ☐ Model G-746 Frigid-Freeze Cabinets.
☐ Rush additional information on G-746 Frigid-Freeze Cabinets.
I'm interested in ☐ Dealer deal ☐ Distributor deal.

Your Name.....
Address.....

Unfranchised Dealers Tell Their Story--

(Concluded from Page 1, Column 4)

with electricity in their homes, the farmers need and want the electrical appliances that they have heard so much about. And they want them now.

So the Waynes bring in their ranges, refrigerators, washers, water heaters, and all the rest from "out of state," according to Bob Wayne. They buy wherever they can get merchandise.

They sell their wares first come, first served. They have no credit problems, for the farmers are ready and willing to pay cash. They have no trade-in problems, for the area is virgin territory for electrical appliances.

When they get merchandise in their store, they advertise the fact in the rural newspaper and over the Gainesville, Ga. radio station. Three service and delivery trucks take the appliances to the farmers' homes.

Turnover Is Fast

Turnover is fast, according to Bob, and the store can be operated profitably on a 25% gross profit margin. Not even floor samples are kept.

As Bob says, "These people need appliances badly. They have wanted them for a long time. So why not let them have them?"

Or take the J. & S. Appliance Co. in Charlotte, N. C.

Ed Jaffre, president of the firm, proudly displayed his vast armada of refrigerators, ranges, washers, and heaters. "There's not a franchise on any of it," he averred, "but we get the merchandise."

The J. & S. Appliance Co. is located on the edge of Charlotte's business district. Charlotte is the natural distributing center for a large section of North and South Carolina.

Towns in the market area are textile and furniture centers. The large agricultural community produces tobacco, wheat, sorghum, and a great diversity of food products. Wages of the industrial workers are considerably higher than prewar and farm income is at its highest.

The R.E.A. and the private utilities have done an intensive job of electrification. The utilities are currently being spurred to even greater efforts by the strong competition of bottled gas.

It is this rural market that J. & S. reaches. Mr. Jaffre claimed that his business is the largest in either state and his competitors readily agreed.

To reach his market, Mr. Jaffre advertises both in a Charlotte newspaper and over the local radio station. He is the local sponsor for the "Easy Aces" radio show. However, he finds that radio coverage is very poor and cannot compare with the newspaper.

"Radio advertising is all right nationally but is useless locally," he declared.

He has five salesmen who do both inside and outside selling, he said. They are backed up by a 19-man service organization that can handle all standard brands of appliances, he added. Besides, the firm handles all its own warranty work.

Mr. Jaffre said that he finds a particularly large demand for refrigerators and ranges. Home freezers, on the other hand, do not move at all. Home freezers, he declared, are too expensive for the farmers here.

Mr. Jaffre has been in business in his present location for the past three years and has worked in Charlotte for the past 21 years.

Over in Winston-Salem, N. C., "the tobacco capital of the world," is the Jefferson Radio & Appliance Co., another prominent unfranchised dealer.

Jefferson is located right on the town's main square, only two doors from the Duke Power Co.

The store, owned by Arthur Poleni and managed by P. F. Edwards, was opened last July. But in the first two months of operation, its 2,000 sq. ft. of display space and an equal amount of storage space in the basement, have been jammed with standard brand appliances.

Lots of Advertising

Fifteen hundred dollars worth of newspaper advertising and $1,000 worth of spot announcements over the radio have brought buyers into the store at a record clip.

Mr. Poleni, who indicated that he brings most of his appliances in from the north in carload lots though some are obtained from local distributors, declared that he is trying to build up a sound business and establish himself in the community.

He claimed that he charges list prices for his merchandise and that each appliance is plainly marked.

"We are trying to treat the people decently here. We believe that they are tired of just seeing pictures of refrigerators and putting their names down on waiting lists.

"We only sell what we have on the floor. A customer comes in and picks out the appliance he wants and we deliver it to him.

"Our motto is 'If we don't say thank you, your purchase is free.' We believe that the people are tired of being shoved around. We want them to feel that we are glad they dropped in to see us even if they do not buy anything. Many of these customers have come back and told us that they like our method of doing business."

Mr. Poleni said that he employed two salesmen and two servicemen. The servicemen were capable of servicing all standard brand appliances and could handle the warranty work as well.

Being situated two doors from the Duke Power Co. is particularly strategic, Mr. Poleni believes. "Everyone has to pay his electric bill there. So the people can't help going past our window. And the association between their electric bill and electrical appliances is natural.

Mr. Poleni considers his trade territory in the heart of the tobacco belt to cover about 250,000 persons. As the area was electrified mostly during the war, it has only about a 12% appliance saturation now.

With tobacco prices at a high level, the farmers have the money to buy and they feel the need for ranges and refrigerators particularly. Besides utility rates are very low and they can hardly afford not to have appliances.

So Mr. Poleni finds demand spread over all models of appliances with the biggest desire for better grade merchandise. Everything moves and the store's delivery truck takes a load of appliances out for installation about three times a day.

Another type of unfranchised dealer is found in E. T. Shaw of Shaw & Co. of Knoxville, Tenn., a city that has benefited greatly from the expansion of cheap T.V.A. power.

Appliances Are Sideline

Electrical appliances are just a profitable side line to Mr. Shaw. He also deals in furniture and real estate, both likewise very profitable.

Mr. Shaw does not have any franchises on his appliances and does not want any. He sends out a truck to pick up appliances wherever he can obtain them and brings them back for sale here.

He has no trouble getting them, he said, because distributors are tired of all the squabbling among dealers. When a buyer comes along and plunks down the cash, he can get the appliances, he indicated.

Mr. Shaw opened his small store in downtown Knoxville last May. Since that time, he estimated, he has sold 400 electric ranges, to mention only one appliance. Yet his floor displays are insignificant in comparison with the Carolina stores.

Drawing on his merchandising experience as a factory representative of the Maytag Co. in days gone by, he stated that he makes it a point to see that his customers are getting the best service from their purchased appliance.

Ten days after a customer makes a purchase, Mr. Shaw has his service man call at the customer's home to check up. If the customer is having any difficulty it shows up in that time. Any troubles are immediately remedied and the customer instructed on proper care of his appliance.

"For instance, few customers are aware that the legs of the new refrigerators are adjustable," Mr. Shaw said. "When our man installs a refrigerator, he does it with a carpenter's level. Only when the refrigeration unit is level, will the customer get the best service from it."

Mr. Shaw stated that he offers credit to customers when they desire it. He carries all his own paper and requires a one-third down payment and 6% on the balance. When a customer pays up within 90 days he just charges a straight 6%, he declared.

Mr. Shaw admitted that he is not merchandising appliances, "as it ought to be done.

"By rights," he said, "there should be a washing machine operating on that floor with a load of clothes in it. The customer cannot get any idea of how a washer works by just seeing one sit on the display floor. One in operation will show just what she is buying."

However, such stunts are not necessary to sell now, he indicated, and he is too busy turning over merchandise to use them.

As far as Mr. Shaw is concerned, appliances will remain strictly a sideline. There is not enough profit allowed to the dealer to make it worth while to handle them exclusively in normal times, he averred.

Super-Cold Case--

(Concluded from Page 1, Column 4)

plaint was filed, allowing the basic claims of Super-Cold to stand.

In numerous hearings Super-Cold established, apparently to the commission's satisfaction, that the company had been the first in the refrigeration display case business to use a low pressure gravity coiling system in meat display cases, single-unit triple plate glass fronts, non-sweating and non-insulated metal drain pans, direct expansion coiling, and a host of other improvements in mechanical refrigeration.

The commission, however, felt that Super-Cold Corp. was not justified in claiming every advance in the industry or that it was the only recognized leader in the field.

Attorney Harry Graham Balter of Los Angeles, a specialist in Federal Trade Commission matters, represented Super-Cold.

Mr. Balter stated that the great bulk of the original charges dealt with the company's claim of superior performance by Super-Cold meat display cases in keeping fresh cuts of meats in better condition for longer periods of time, with less discoloring and less dehydration than cases having a lesser efficient coiling and poorer humidity control.

The New FRESH'ND-AIRE HUMIDIFIER

FEATURES

- Adds correct amount of moisture to air.
- Cleans, washes and filters out dust, dirt, smoke and pollen.
- Circulates air gently—without drafts.
- In winter, provides greater comfort at lower room temperatures. Reduces heating costs.
- Simple, sturdy all-steel construction assures years of trouble-free service.
- Operates at penny-cheap cost.

SPECIFICATIONS:

Fresh'nd-Aire Humidifier—Model No. 500

NEW HEALTH AND COMFORT FOR CUSTOMERS! NEW SALES AND PROFITS FOR YOU!

This year—many a person will say goodbye forever to dry parched air—the indoor cause of ill-health, colds, and incalculable damage to furniture, walls and woodwork.

Here's why! Thousands are discovering the amazing new Fresh'nd-Aire Humidifier—the scientific answer to the problem of moisture-starved air. Just fill with water—plug in—and the Fresh'nd-Aire Humidifier does the rest. Filters and washes air as it humidifies—circulates pure, comfortably moist air throughout the home.

Get all the facts about this newest Fresh'nd-Aire profit-maker. Write today!

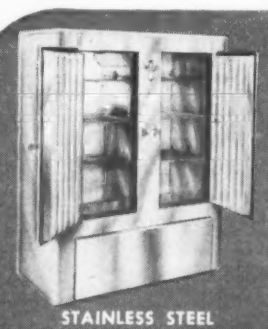
Nationally Advertised in TIME • PARENTS BETTER HOMES & GARDENS Retail Price $59.50

FRESH'ND-AIRE COMPANY

A division of Coy Corporation

Export Sales: The A. I. Alsdorf Company, Chicago, Illinois

421 NORTH LA SALLE ST., CHICAGO 5, ILLINOIS



STAINLESS STEEL REACH-IN REFRIGERATOR

QUALITY BUILT THROUGHOUT

DRY BEVERAGE COOLER

Crown

For Beauty..... CROWN
For Construction... CROWN
For Economy..... CROWN

CROWN manufactures a complete line of the finest commercial refrigeration equipment. Our superior craftsmanship assures perfect performance.

- REACH-IN REFRIGERATORS
- BEVERAGE COOLERS
- FROSTED FOOD CASES
- FREEZERS
- DISPLAY CASES
- ICE CREAM CABINETS

IMMEDIATE DELIVERY
DISTRIBUTORSHIPS AVAILABLE

Crown REFRIGERATOR CORP.
FACTORY & NATIONAL SALES OFFICE
METUCHEN, NEW JERSEY

EXPORT DIVISION: 154 NASSAU ST., NEW YORK 7, N. Y.

Here's your market

Institutions are good customers

Stainless steel institutional refrigerator, model 4721 with cube maker, by courtesy of Koch Refrigerator Company, of North Kansas City, Missouri, which has been continuously active in the commercial refrigeration market since 1883. The Electric Refrigeration Division of Servel, Inc., manufactures only condensing units. These are available through prominent distributors and fixture manufacturers in all sections of the country.

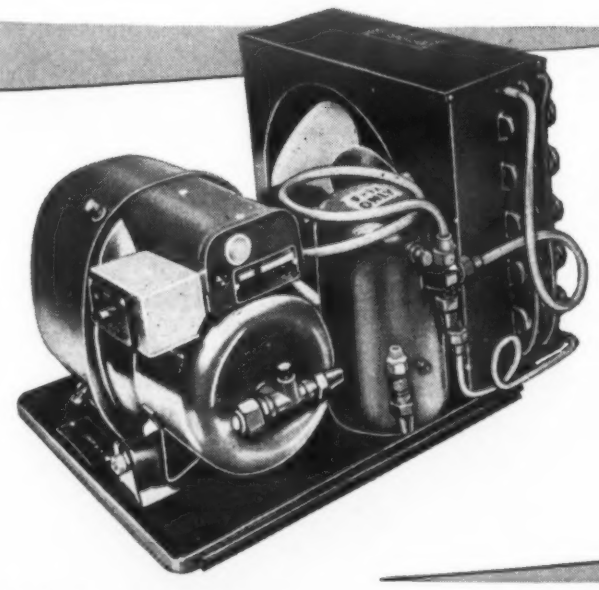
TOO MANY dealers are prone to overlook the institutional market. In the term "institutional" we include hospitals, clinics, nursing homes, homes for the aged, orphanages, schools, colleges, etc. A substantial percentage of the food consumed in every large community goes to this market. Their problem of preserving perishable food parallels that of the hotel and restaurant field except that it is, as a rule, on a larger scale.

Sanitation and protection against contamination and waste receive more attention in this market than in the normal commercial market. Durable goods are purchased on a basis of durability rather than price.

Because of these factors stainless steel fixtures—often custom built—are popular in the institutional market, and the alert dealer will do well to line up a reliable source of such production.

Servel Supermetic is a "natural" for the institutional market. The compact Supermetic design saves space. The elimination of belts, seals, and gasketed joints reduces the expense and annoyance of service. It also virtually eliminates the possibility of damage to woodwork, tile floors, and other fixtures through oil leakage with its attendant dust and dirt accumulation.

The next time you quote on an institutional job, specify Servel Supermetic. It will probably mean a succession of repeat sales to the same customer.



Servel Supermetic model H2B is popular for the larger institutional refrigerators. Other Supermetics ranging up to 3 HP will match almost any institutional requirement.

Servel Inc.

ELECTRIC REFRIGERATION DIVISION, EVANSVILLE 20, INDIANA

This is Number Twelve in a series of advertisements featuring the markets available to the alert dealer in the commercial refrigeration industry. Ask for reprints for use in training your salesmen to take full advantage of all commercial refrigeration markets.

INSIDE DOPE

by GEORGE F. TAUBENECK

(Concluded from Page 1, Column 1)

of these impartial, tongue-in-cheek investigations.

If we are to accept at face value what scientists have discovered about the inexorability of natural cycles, we can present proof that no amount of planning or control-by-the-state can change the rhythm of human events in the economic sphere. In other words, there is absolutely no reason to believe that "economic planning" can avoid or even slightly change the course of booms and depressions.

The ups and downs in business activity and prosperity are as natural and unavoidable as are the seasons—and as regular.

As a matter of fact, they can be predicted and charted on a graph—in advance.

And so all this seemingly unrewarding or irrelevant "pure science" fol-de-rol about "cycles" becomes immensely important to the indivdual business man, as well as to society as a whole. If these promising examinations of and meditations about the Natural Law of Cycles are carried further—then the Swami with a crystal ball, along with the astrologer and the political purveyor of economic nostrums, will be replaced by the Cyclical Engineer.

Then we'll be getting somewhere.

We shan't be able to defeat or circumvent Natural Law, but we'll know how and when to accommodate ourselves to it—just as we now lay in a stock of warm clothing and blankets for fall and winter, and buy porous, lightweight garments for spring and summer.

That is: if the Cyclical Engineer proves his point.

There Are Tides In Human Affairs

For years many students of economic history have been amazed and bemused by the startling coincidence of the coming and going of spots-on-the-sun (as observed by astronomers) with the "curves" of stock market quotations (as charted by statistics-hounds).

A long time ago Col. Leonard P. Ayres of the Cleveland Trust Co. published a complex graph which covered more than 100 years of American financial history. On this record of security prices he superimposed the curves of sunspot incidence. The two jagged lines were almost identical.

Kinda makes you shudder, doesn't it?

Additional data:

Working independently in scattered parts of the globe, many physical and social scientists have been disturbed and titillated—and then intrigued—to discover that such oddly diverse phenomena as the birth-rate of certain insects corresponds closely to the curve of pig-iron production; that the growth and decline of a nation falls into the same pattern as does the age-persistence of certain trees; and that the occurrence of wars is followed by an upsurge in the ratio of boy-babies as compared with girls. (This last phenomenon used to be an Old Wives' Tale; but it now is supported by statistical evidence.)

Doesn't this sort of too-pat-to-be-accidental information make even the best plans "of mice and men" seem sort of silly and presumptuous? Doesn't it suggest that God "works in mysterious ways his wonders to perform?"

Well, it does to a great many of the most hard-boiledly realistic brains of our generation: the so-called "pure" scientists.

It Happens Every Day

So now there has grown up a new cult: the Priests of Cycles and Rhythms. These evangelists for an absorbingly interesting occultism have much to recommend them, and can offer exciting evidence to substantiate their pretensions toward stature as soothsayers.

Their first illustration of the inevitability of *natural rhythm* is the four seasons. These we accept, and try to get along with—even though air conditioning engineers are doing a good job of thwarting them!

Other cycles which we experience and accommodate ourselves to every day: the youth-age cycle, feminine menstruation, the birth cycle ("the first baby may come any time—after that it takes nine months"). Poker players have found that luck runs in streaks. Fishermen and hunters acknowledge that at certain moments their "catch" is better than at other times. Doctors have observed that there is a relationship between deaths from heart disease and the volume of ozone in the air we breathe. (Also, medicos know that communicable diseases flow in waves, too—thus accounting for epidemics).

All of us have noted that there are upswings and downswings in our personal emotions. (If we were smart, we would record these deviations-from-the-norm on a graph—and thus we could plot our future emotional reactions and compensate for them). Incidentally, if we were super-smart, we'd chart the emotional curves of our associates and relatives, too, while we were at it. Then we'd know better when to start something, when to pull in our horns, and when to go ahead on an even keel. (Please excuse the mixed metaphor.)

Any number of scientific investigators who have subjected human guinea pigs to exhaustive and prolonged observation agree that all humans experience predictable periods of optimism and pessimism, cheerfulness and crabbiness. With women, the cycle is short (two weeks to five weeks). Men's feeling of well-being or ill-humor is likely to come to a peak or a valley at seven-to-nine weeks' intervals.

Now *there's* a study which should be rewarding to Courts of Marital Relations, and to those judges who hear divorce petitions.

An odd "aside" in this connection is that both of these short-term male and female rhythms coincide with the growth-periods of certain vegetables, with the birthrate of squirrels, with certain minor solar-phenomena fluctuations, and with the recorded peaks and gashes of terrestrial magnetism (which is another manifestation of our Sun's power).

Doesn't seem to make sense, does it? But wait . . . if you're still unconvinced.

Although the Science of Cycles is still in an incubator, sufficient irrefutable evidence has been discovered and tabulated to prove that four inescapable rhythms *do* affect all life, organisms, and all human affairs. These rhythms occur at the following regular intervals:

(1) 54 years
(2) 18 years
(3) 9 years
(4) 3½ years

Inasmuch as these cycles operate independently but concurrently, occasionally two or three of them will hit a peak or a depression simultaneously. Then there's hell to pay—or fortunes to be made overnight. But that lucky or ill-starred confluence of natural rhythms doesn't happen often.

Again, it is known that there are lesser, not-well-defined cycles in existence which serve to disturb the precise regularity of the above unholy quartet of career-determinators. It is assumed, because of a woeful lack of evidence, that these poorly-defined cycles must be *weighted* (even if they are still undiscovered) when one attempts to soothsay the Future on a projection of the four *known* cycles.

But taken by and large, all natural cycles—known and unknown, distinguished or undiscovered—continue to work like a clock, no matter what anybody tries to do to ameliorate or thwart them. And all of us apparently are gripped by their power.

The Long Pull

To get down to cases:

In the grand and glorious United States of America, at least three of the inevitable *long-pull* 54-year cycles which the tabulators of Economic Rhythm Patterns insist are *alive* and in continuous operation have been plotted on a convenient historical graph. In each case, commodity prices, wholesale prices, business activity, stock market quotations, and wars in which we were involved began and ended on schedule—according to 54-year rhythms.

Thus, when one looks at the progress of America from a lofty vantage point, it would appear that history has repeated itself according to a predetermined pattern at least three times "over the long pull."

In our less than three centuries of existence, our fortunes and our opportunities have gone through three long-range developments of 54-years duration. That we can prove.

Recipe for Success

At the beginning of each 54-year upswing, the nation's economy has been at rock-bottom. Debts have been washed out, unemployment is a serious problem, wage rates are low, investments are relatively cheap, and interest rates are rising.

Also new products and new industries are beginning to appear.

Slowly but inevitably the curve of activity and prosperity begins to rise. Prices drop, wages rise a bit. Investment money comes out of safety-deposit-strongboxes. Inventors are given audience; promoters pop up out of their hiding places. Optimism is in the air.

People work harder and longer; they save more and they dare.

Comparable to the break-up of an arctic river log-jam, the nation's economic pulse beats slowly at first, but it accelerates ever more rapidly as the sluggish stream heartily gives vent to its natural instincts.

Despite the ups-and-downs occasioned by the quick incidence of unavoidable shorter cycles, this 54-year upsweep continues. During its sway, each bottom rises above its previous low; and every top surmounts its predecessor.

The Middle Pull

And then there's the "bourgeois" cycle to consider—the wave of progress which courses at a three-times-nine speed.

Authorities disagree as to the actual length of the 18-year economic cycle. In general, these disagreements seem to focus upon a 18-years-and-four-months period for business as a whole. (As cycles grow shorter, variance for nations, corporations, and smaller segments vary more widely.) Nevertheless, there's evidence aplenty that the about-18-years cycle has a lot to do with human affairs and with business movements.

Prices of real estate, activity in building and construction, the marriage and birth rate, acreage planted to wheat, bricks produced, loans and discounts, prices of preferred stocks, and fluctuations of "blue chip" common stocks—all these basic economic indices fluctuate according to historical 18-year patterns.

Sociologists who have noted and compared these interesting trends believe that men are like birds and fish in this respect: their mating instinct, their willingness to take long chances, and their urge to build permanent structures all seem to drop into the slots of a predisposed, time-dictated set-up.

Birds fly long distances (dare) to mate and build nests (procreate) at predictable moments. So do men. They meet, mate, and procreate according to regular rhythms, and they dare to build homes and business structures at the same historical moments. The human cycle of meeting, breeding, and building takes, roughly, 20 times longer to fulfill than does that of the birds.

But each cycle hits the appointed time on the nose, every time.

It would appear, then, that birds are smarter than men—in their ignorance. They don't fly up north from their warm winter quarters too soon. Nor do they abandon their nests before their eggs are hatched. Are men different? Well . . .

(To Be Continued)

THE SATISFACTION LINGERS ON... WITH
HUSSMANN
EQUIPMENT
A good Refrigeration Man puts his best, sincerest effort into every job. Then, when he's finished, he goes on his way – entrusting his reputation to the performance of the Equipment.
The high quality construction and scientific engineering built right into every HUSSMANN Product assure satisfactory performance! HUSSMANN won't let you down!
HUSSMANN
REFRIGERATION, INC.
HUSSMANN BUILDING • ST. LOUIS 6, MO.

Wall WIRE PRODUCTS COMPANY
PLYMOUTH • MICHIGAN
Makers of
REFRIGERATOR SHELVES • STAMPINGS
FORMED AND WELDED PRODUCTS

Do you require stampings?

Our Equipment includes 25, 50 and 100 ton presses. We can give unusually quick deliveries of stampings which could be made on these presses.

more sales for you!

Better Dealer Support

Highly productive advertising, prepared by you or your agency, issued at the dealer level. Dealer willingly pays but 2½c a line. Your cost is proportionately low.

Increased Product Prestige

Large-space advertisements convey your sales message to people interested in home appliances throughout the Great Chicago Market.

Better-known Retail Outlets

Each dealer gets selective coverage of his local market . . . prominent identification in his own trading area.

Faster Results

Because dealers back up this advertising more enthusiastically, it pays off right away! More sales for your dealers, more profit for you!

from the Chicago Tribune's Selective Area Advertising Plan

Identifying your local outlets—prominently—can pay big dividends, help you build a stronger selling organization. Use the Tribune's Selective Area Advertising Plan to do this! No other plan localizes your sales story so effectively, none is tailored for such quick results.

Under the Tribune's Plan, each of your dealers gets a campaign directed specifically at the market he serves. Each gets highly localized selling pressure directed at his own best prospects. And you get total coverage of the entire Chicago Market . . . a market large enough to take all or the greater part of many manufacturers' production.

This is possible because the Tribune gives you *five separate Sunday sections* in which to list your non-competing dealers. You get selective coverage with five advertisements for the price of one—further you share the costs with your distributors and dealers. Result: more sales for you in the rich Chicago Market.

Put the Tribune's Plan to work for you. Through it, you can best implement the significant market data revealed in the Tribune's Durable Goods Study among consumers and dealers. Learn how the Plan fits your specific needs. Write your nearest Tribune representative as shown below.

PLAN IS PAYING OFF FOR USERS!

More than a dozen radio and appliance manufacturers are using the Tribune's Plan. Included in this group are Bendix washer, Eureka vacuum cleaner, and Bendix and Admiral radios. *You and your dealers* can profit from this Plan, too. Tribune rates per line per 100,000 circulation are among America's lowest.

Chicago Tribune

The World's Greatest Newspaper

August average net paid total circulation:
Daily, over 1,015,000; Sunday, over 1,500,000

A. W. DREIER, CHICAGO TRIBUNE
810 Tribune Tower, Chicago 11

E. P. STRUHSACKER, CHICAGO TRIBUNE
220 E. 42nd St., New York City 17

FITZPATRICK & CHAMBERLIN
155 Montgomery St., San Francisco 4

W. E. BATES, CHICAGO TRIBUNE
Penobscot Building, Detroit 26

MEMBER: AMERICAN NEWSPAPER ADVERTISING NETWORK, INC., FIRST 3 MARKETS GROUP, AND METROPOLITAN SUNDAY NEWSPAPERS, INC.

After 11 Months' Operation, Heat Pump Wins Hearty Approval of Southern Home Owner

By George M. Hanning

CHATTANOOGA, Tenn. — "I am very highly satisfied with my heat pump and expect both my winter heating and summer cooling to cost me less than $75 for the first year of operation," C. B. Osborne, owner of probably what was the first residential heat pump installation in the south, declared recently.

Mr. Osborne, who is also sales promotion manager for the Electric Power Board of Chattanooga, local utility, agreed last fall to be his own guinea pig in testing out the practicality of drawing heat from the earth to warm his home.

Now, after nearly a year of using the heat pump under conditions normally found in any user's home, Mr. Osborne gives the reverse-cycle air conditioning system his enthusiastic approval.

With the thermostat set at 76° F. and with automatic controls to shift the unit from the heating to the cooling cycle when necessary, Mr. Osborne found that the heat pump maintained constant temperatures, eliminated fumes, and yet required none of the care that other types of heating plants need.

It saved on bills for cleaning draperies and walls, too, he said.

Mr. Osborne's home is average sized. It is a single story, three bedroom, six-room brick structure with insulated overhead, and with doors and windows weatherstripped. Calculated heat loss is 66,000 B.t.u. per hour.

"There are no perfect test factors present," he declared. "With two small children around, you just can't keep the doors closed. We did not try to be extra careful in order to get the most efficient performance out of the unit.

"We just lived our normal life, as any family would do. We think we gave the unit a very fair test.

Skeptical Wife Convinced

"My wife is one who was very skeptical of air conditioning. After her experiences in air conditioned theaters where she felt nearly frozen, she wanted none of that in her home. She argued that the children would catch pneumonia from the cold drafts.

"I told her that she did not have to use the air conditioning if she did not want to. I let it go at that.

"Last spring when we started to get a few hot days, I came home from work and found the house at a comfortable, cool 76° F. I didn't say anything and my wife didn't either.

"Then came a 100° F. scorcher. It was wonderful to come home to that cool house.

"My wife broke down then and had to admit that the unit was working like a charm. 'I don't know what we ever did without it,' she said.

"She's sold on air conditioning now. What's more, lots of our friends dropped over on those hot days, just to see if the new contraption was working. When they discovered it was, they stayed around to cool off."

The unit used in the Osborne home is a 3-hp. Marvair job. It is set on a concrete base in a corner of the basement, occupying an area 3 ft. wide, 7 ft. long, and 6 ft. high.

As extra equipment, a battery of germicidal lamps is installed in the cold air return compartment.

Ductwork carries the heat to ordinary floor registers.

To draw the heat from the earth, a 235 ft. well was sunk last November in the driveway of the Osborne home. The well has a 150-ft. stand of 60° F. water.

A satisfied user is always a star salesman, and this will apply to heat pumps as it has to appliances. On this and the following page are some first-hand reports from Chattanooga and Nashville regarding this new development which will interest all readers.

The ground coil sunk into the well is cased in a 4-in. steel pipe to bed rock at 90 ft.

A closed water pump system circulates water through a U-tube ground coil and through the evaporator of the refrigeration unit.

The water in the coil takes heat units from the well water, which is at earth temperature, and carries them to the evaporator where they are transferred to the refrigerant.

Loss of the heat units causes the water temperature to drop about 6° to 8° F. Water that entered the evaporator at 60° F. returns to the well at 52° F. Being cooler than earth temperature, it absorbs heat on its trip through the U tube until it rises to 60° F. again.

The heat laden refrigerant, meanwhile, is compressed and passes to the condenser. A fan blowing over the condenser coils circulates the warm air (at approximately 110° F.) through the house.

For cooling, the refrigeration cycle is reversed. The heat from the house is transferred to the refrigerant and thence to the closed water system. The circulating water carries the heat into the ground and disperses it.

Cuts Fuel Bill In Two

Using the heat pump saves him approximately half the cost of heating and cooling his home by any other method, Mr. Osborne believes.

However, it proves to be so very economical for Mr. Osborne because of the ready availability of cheap TVA power. The following table shows the kwh. used for the heating season and what they cost Mr. Osborne.

Month	Kwh. Used	Cost
Nov., 1946	900	$ 5.40
Dec., 1946	1,408	8.45
Jan., 1947	1,781	10.68
Feb., 1947	2,095	12.57
Mar., 1947	1,861	11.17
April, 1947	606	2.42
May, 1947	529	2.12

The April and May figures include cooling costs.

Mr. Osborne sees great possibilities for the heat pump over and above its house heating and cooling functions. There is no reason, he believes, why another coil could not be inserted in the unit to heat and cool water. Thus each home would have hot water and ice water in its taps at all times.

Mr. Osborne has not been satisfied with merely installing a unit in his own home. He is now working on the idea of getting at least one unit set up in each town in the Power Board's area. He wants a few good installations, he said, so that they may be carefully studied.

So far 10 heat pump installations, all Marvair units, have been made in the Chattanooga area. There are 21 all told in the Tennessee Valley Authority's operating area.

Trying Three Units In One House

One of the largest installations is now being put in the Happy Valley Farms mansion of John L. Hutchison, Jr., owner of the Peerless Woolen Mills.

This job will employ two 3-hp. Marvair units and a 5-hp. unit hooked together in a single system. The two 3-hp. units are located in the basement at one side of the house and the 5-hp. unit is being placed in a basement at the opposite side of the building.

Each will heat and cool certain specific zones of the house. The two 3-hp. units will operate on a 350-ft. well and the 5-hp. unit on a 250-ft. well.

Because the heat pump is new and installation costs are very high, Mr. Osborne believes that only the wealthy can now afford to buy one.

"Their homes require much more capacity than the present 3-hp. units can give them," he declared. "Therefore, I think that larger equipment is needed if we are going to put over the heat pump."

Because a large part of the cost of installing the heat pump goes into digging the necessary deep well, two installations in the Chattanooga area are being used to test the possibility of using horizontal ground tanks instead of wells, he indicated.

In these installations, he said, two trenches are dug to a depth of about 7 ft. Three tanks measuring 18 in. in diameter and 20 ft. in length are laid in each trench.

(Concluded on next page)

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of users whose equipment carries these names!

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Superior design, materials and workmanship have won for these products their leading place in refrigeration.

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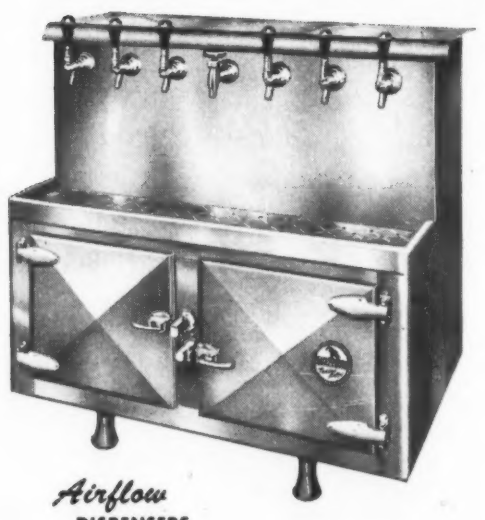
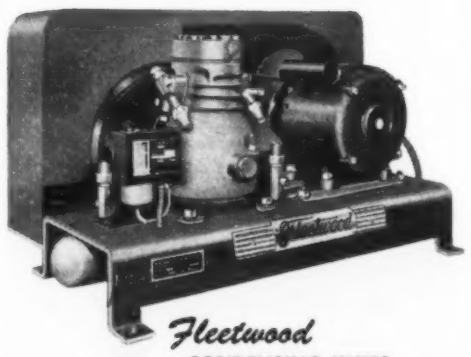
- Top Display Cases
- Fish and Poultry Cases

Fleetwood
REACH-IN REFRIGERATORS



Airflow
DISPENSERS

Airflow
WALK-IN COOLERS



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Hard Limestone Under Nashville Foils Experiments To Draw Heat from Earth

NASHVILLE, Tenn.—Drawing heat from the earth to warm a home just will not work in Nashville, according to E. E. Parks, who has handled heat pump work for the Nashville Electric Service here.

That is because there is a strata of hard limestone rock beneath the city, cutting it off from a ground water supply, he declared.

"We installed one heat pump and it worked beautifully," he stated. "But when we put in the second one, we ran into trouble.

"We took tests on it and found that the water passing through the water circulating system was getting colder and colder. This we learned, was because the earth itself did not have enough heat units to replenish the heat drawn off by the water.

"This continued until the temperature of the water had dropped so far that the reverse cycle refrigeration unit cut out.

"We found that if the unit remained idle over night, enough heat returned to the earth for the unit to be operated during the day. However, that was no good for home heating, so we took out the unit.

"It seems that the limestone bed beneath the city is so hard that it acts as an insulator rather than as a source of heat.

"In the first installation, we were fortunate and had run our well into two streams at different levels. These streams provided a running source of ground water that carried sufficient heat for the heat pump to operate successfully.

"Drilling wells is a major cost in the installation of the heat pump. And in this area, the owner has no assurance that once the well is dug, he is going to get any water. He still has to pay for the digging.

"We had one instance where a man dug five wells on his farm without hitting water. That gets to be pretty expensive.

"The heat pump would make a good even electrical load for the utility if it were practical here. But the well-type installation just isn't practical.

"The tank type, where tanks are buried horizontally a few feet below the surface of the earth is likewise impractical because the layer of limestone is usually only about 6 or 7 ft. down. In winter the earth freezes to a depth of about 2 ft. That doesn't leave much warm earth to provide heat for the heat pump."

Contractor Finds Labor Administration, Initial Cost Are Heat Pump Problems

CHATTANOOGA, Tenn.—"It will take at least another year to tell how the heat pump is going to work out in actual field installations," L. R. Brooks, who has handled all heat pump installations in this area to date, declared recently.

Mr. Brooks, who is president and general manager of J. W. Brooks & Sons, heating and air conditioning contractor here, stated, "I think that the heat pump has great possibilities. If I didn't think so, I wouldn't fuss around with it.

"There are still lots of problems to solve," he added, "and the biggest is to get the price down to below $2,500 for a 3-hp. job. There won't be much objection to $2,200 for a 3-hp. heat pump that will heat a home in winter and cool it in summer.

"But there is plenty to the $3,000 it is costing now."

That $3,000 figure is Mr. Brooks own estimate, based on his experience in actual residential installations.

There is nothing to installing a heat pump that would cause any trouble to a good residential air conditioning contractor, Mr. Brooks declared. A contractor who has handled only commercial air conditioning might run into some problems on the ductwork, though, he added.

As for service, Mr. Brooks has had none on any of the dozen installations he has made in the past year. However, he could see no particular problems that aren't present in any other refrigeration system.

"Of course," he admitted, "if the well from which the heat is to be extracted is not dug right and there is insufficient water in it, this might cause head pressures to rise.

"Getting efficient heat transfer is one of the biggest engineering problems yet to be solved," he stated. To get around the high cost of digging wells, he is now trying out horizontal ground coils that will require digging only a trench about 7 ft. deep. This type of installation is still so new that he has come to no definite conclusions about it.

Another big problem that faces the contractor who wants to install heat pumps is the administration of labor. "There are too many crafts involved," he declared. "There are the carpenters, electricians, plumbers, refrigeration men, sheet metal workers, and common laborers."

For the air conditioning contractor to deal with them all and get their efforts coordinated proves to be very costly, he indicated.

Besides, he noted, the men are not familiar with the heat pump and efficient methods of installation are still to be developed.

However, with all its present problems, which in a way are typical of the experimental stage of any new product, Mr. Brooks still thinks that the heat pump will develop into a good business in days to come.

"But if anyone goes into the heat pump business today expecting to make any money at it, he is going to get fooled," according to Mr. Brooks.

Osborne--

(Concluded from preceding page)

Just as in the well, water is circulated through these tanks and through the heat exchanger of the refrigeration unit.

"We know that these tank units will do the heating job, but it remains to be seen if they can handle the cooling," he averred.

All of the heat pump installations so far are of the residential variety. However, Mr. Osborne sees possibilities in the commercial field in Chattanooga by using water from the Tennessee river that flows along the edge of the business section.

"It would not be a difficult matter to draw a large supply of water from the river and pipe it through the business section of the city," he asserted.

"I think that utilities that can see their way clear to do so should get behind the heat pump. If each one could put in just one field installation and learn the problems to be encountered we could move the development of the heat pump along a lot faster.

"I can see no reason why utilities should not back the heat pump. It does not take as much load as an electric water heater and will give them a year-round load.

"The heat pump will make no sudden call on them for more power. It will develop gradually over the next several years."

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Answer:
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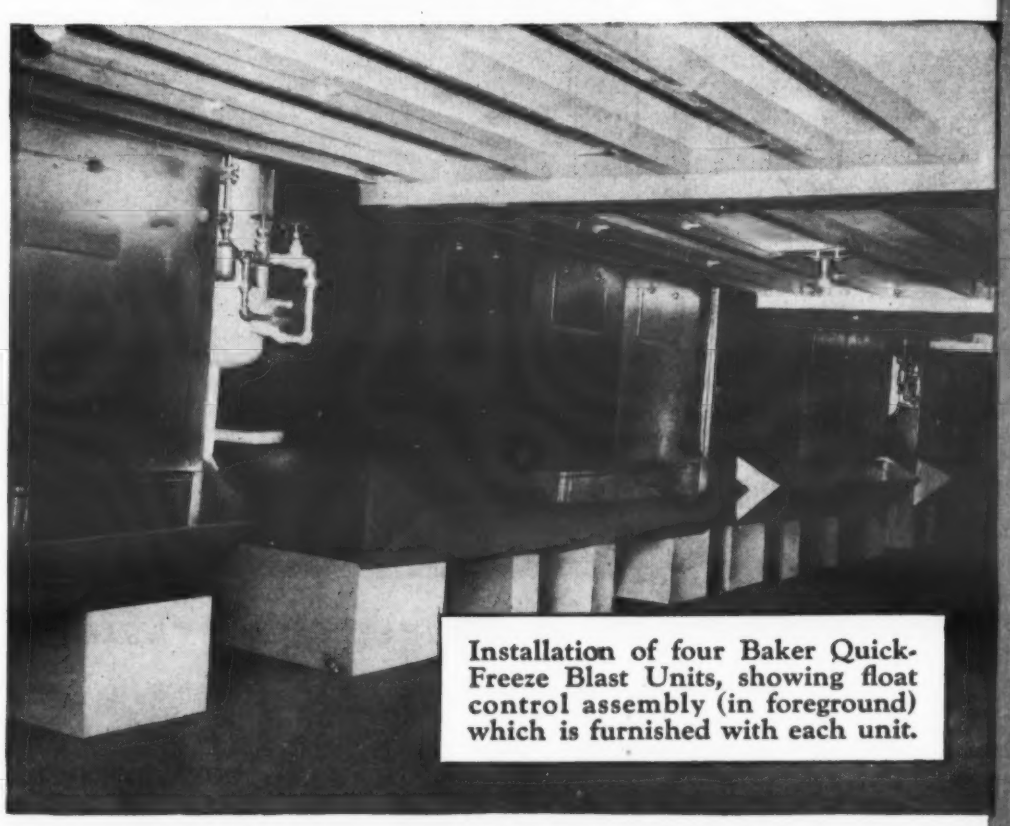
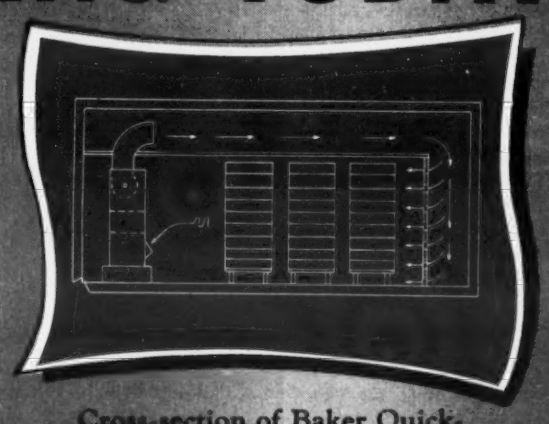
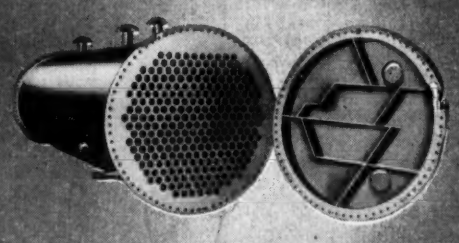
Call in your Baker engineer today! Or write for case histories of Baker engineering and equipment at work — efficiently, economically, *profitably!*



Installation of four Baker Quick-Freeze Blast Units, showing float control assembly (in foreground) which is furnished with each unit.

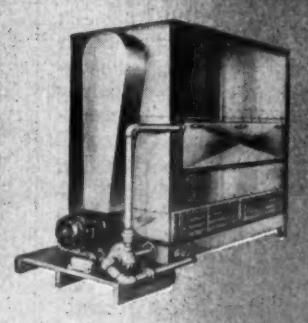


Cross-section of Baker Quick-Freeze Blast Unit, indicating airflow.

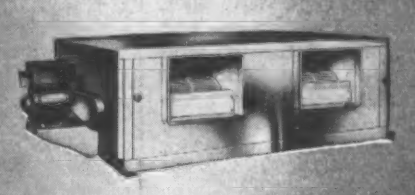


Baker Shell and Tube Condensers, Liquid Coolers, Liquid Receivers.

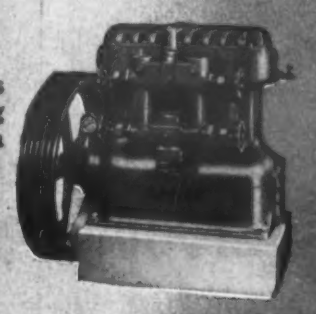
Baker Evaporative Condensers.



Baker Cooling Units.



Baker Compressors and Condensing Units for ammonia and Freon.



BAKER ICE MACHINE CO., INC. SOUTH WINDHAM, MAINE

BAKER REFRIGERATION

FOR BETTER REFRIGERATION—BETTER BUY BAKER

Field Report

What are dealers, distributors, servicemen, and the others on the industry's front lines thinking about today? These "Field Reports"—extremely popular in prewar days—now give NEWS readers the latest ideas of the men closest to the all-important consumer.

Columbus Electrical Dealers Association Refuses Allowance on Used Ice Boxes, Terms It 'Price Cut'

COLUMBUS, Ohio—Preparing for the eventual return to "normal" market conditions, members of the Electric Dealers Association of Columbus are not offering any allowance for ice boxes traded in on new refrigerators.

Earlier this year the group passed a resolution to the effect that trade-in allowances on ice boxes actually amounted to a price cut on new refrigerators and urged all electric refrigeration dealers in the area to drop these trade-in allowances.

In its resolution the association boldly declared, "There is no market for ice boxes, either new or used, and any allowance given could be termed a reduced price sale."

Another important factor in this decision was the group's statement that "discounts on electric refrigerators are shorter than at any time during the history of electric refrigeration sales."

Dealers shouldn't even try to dispose of the ice box for the purchaser of an electric refrigerator, the association believes. It suggests that "when a dealer is confronted with the problem of ice box trade-ins, he recommend that the customer advertise same in the classified section of newspapers and dispose of in that manner or in any manner that the customer sees fit."

As for trade-ins of used refrigerators, association members are generally following standard trade-in allowances, reports Stanley A. Dennis, secretary-treasurer of the group and sales promotion manager in the Columbus district for the Columbus & Southern Ohio Electric Co., public utility.

Other officers in the association are William Hoermle of Hoermle Appliance Store, president; Herbert Thomas of Young & Thomas, Inc., first vice president; and L. L. Claymier of Star Furniture Co., second vice president.

Total paid-up membership of the group now numbers 93 dealerships, including the leading department stores in Columbus. The association, however, maintains a mailing list of 217 to keep all dealers in the territory informed of its activities.

These consist in part of regular monthly meetings featuring discussions of current problems, often by outside speakers. The first fall meeting, for instance, was largely devoted to a discussion of the market potential of home freezers by A. E. Lucks, sales manager of Bard, Inc., Columbus distributor for General Electric Co.

"As pointed out in a recent editroial in AIR CONDITIONING & REFRIGERATION NEWS, the time will soon come when the refrigerator and range business will be saturated, and dealers won't have any salesmen trained," Mr. Lucks told the association members.

"Why not send out tenderfoot salesmen to sell home freezers. People haven't been swamping the dealer's doorstep to buy home freezers. They're not a demand item. You have to go out and sell them.

"A family of two can profitably use a home freezer," he continued. "They can buy in quantity and save, and they have food on hand. You and I are wondering about the food supplies this fall and winter. Well, a home freezer will solve this problem.

"You're going to have to sell freezers, and to do that you have to have one in your own home.

"Now we have to sell the need for a home freezer," said Mr. Lucks. "That need, first noted in the war years of rationing, still exists and will continue to grow.

"You can tell the housewife, for example, that she can buy a side of beef for 50 cents a lb., have it processed in a locker plant for 2 or 3 cents a lb., and the cost will still be 30 cents under the 85 cents a lb. she pays for meat in a market.

"Tell the housewife, also, about the advantages of freezing her fruits and vegetables instead of canning. Freezing is much simpler and the results are much better.

"In our freezer at home last year we put away 25 doz. ears of corn. We thought that would be a lot, but on Christmas Day we ate the last of it," recounted Mr. Lucks.

Following a recent meeting of the Electric Dealers Association of Columbus, Ohio, the officers check into some reports. Left to right are Herbert Thomas, first vice president; William Hoermle, president; L. L. Claymier, second vice president, and Stanley A. Dennis, secretary-treasurer.

The need for training of salesmen is imperative, he declared.

"Large organizations like General Electric and Westinghouse are coming out with extensive plans for salesman training. Does this mean that they think this present bonanza will go on forever?

"But, where are the men to be trained? you ask, and why bother, you say.

"Well, it took only a very short time for the vacuum cleaner business to fall apart. It wasn't so long ago that everyone was crying for vacuum cleaners, and then suddenly we had too many.

"Let's as AIR CONDITIONING & REFRIGERATION NEWS suggests, recruit manpower now and train them to sell freezers.

"We have one dealer, for example, who came in to us and asked for something that his men could get out and sell. We suggested freezers. He agreed, so we shipped him 10. These were sold in 10 days, and the dealer immediately ordered 20 more. Now he has another 20 on order," said Mr. Lucks.

"Many of us don't know a whole

(Continued on next page)

ONE BILLION Frigidaire

The most important announcement ever made about an AUTOMATIC WASHER
See this double-spread on Frigidaire Automatic Washer in The Saturday Evening Post, Oct. 25.

Magazine advertising alone reaches more than 140 MILLION readers!

Frigidaire's "3-in-1" ads are unusually interesting and completely different. They effectively "sell" Frigidaire as a *family* of products by advertising two, sometimes three, products at once.

More than 8 MILLION listeners every week!

The "Man Called X," Frigidaire's popular radio show, featuring Herbert Marshall, gains more and more listeners. And each week these listeners get a "selling" on Frigidaire as a *family* of products.

24 Leading Business Magazines carry Frigidaire Commercial Refrigeration sales messages to food stores, restaurants, hotels, hospitals, institutions, manufacturers, locker plant operators.

Architects and Builders are being continually "canvassed" by advertising on the quality of Frigidaire products—selling for now and the future in the building market.

FRIGIDAIRE'S WIDE VARIETY OF DEALER HELPS LIKE

Local Advertising Helps
A wide variety of dealer newspaper advertisements, radio commercials, and other helps, prepared by men with long retail advertising experience.

Film Showings
For showings to school, church and club groups, Frigidaire Dealers have motion picture and slide films by Frigidaire and those from General Motors' film library.

Advertising Literature
Each Frigidaire household and commercial product has its "library" of advertising pieces for use in the showroom as handout or mailing pieces.

Advertising Displays
Sidewalk and store traffic is always being "sold" Frigidaire by the wide assortment of colorful, compelling displays available to all Frigidaire Dealers.

for
SULFUR DIOXIDE
and
METHYL CHLORIDE

See Your
ANSUL WHOLESALER

These Ansul Refrigerants have a long record for DRYNESS, PURITY and DEPENDABILITY. You will like Ansul's friendly service.

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ANSUL CHEMICAL COMPANY
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Distributors for Kinetic's "Freon-11," "Freon-12," "Freon-21," "Freon-22" and "Freon-113"

Field Report (Cont.)

Ice Box Trade-Ins--

(Concluded from preceding page)

lot about frozen foods, and we don't have our own freezers. You must remember, gentlemen, that a lot of big companies are back of you dealers in promoting home freezers.

"We're selfish. We want the dollar. That's why we're in business. But we must remember that we've all got to promote home freezers.

"Today home freezers are priced out of the pocket. You can find one at almost any price. Of course, this brings up the problem of what size freezer should a prospect buy.

"I tell farmers, for example, that they should rent a locker so they can have a contact with a locker plant's processing service and then buy an 18-cu. ft. home freezer. Farmers can use an 18-cu. ft. box very nicely.

"At our home we started out with a 10-cu. ft. freezer. Now we're up to 28 cu. ft. and we could use another 10 cu. ft."

A. E. Lucks, sales manager for Bard, Inc., G-E distributor in Columbus, Ohio, rewinds the G-E film on frozen food preparation following a presentation before a meeting of the Electric Dealers Association of Columbus, Ohio.

Tie-In with Opening of New Apartment House, Nearby Movie Theater Draws Attention to Store

DENVER—Nides General Electric Appliances Co. here, claiming to be one of the largest G-E dealerships in the nation, opened at 2017 East Colfax during September with an "all ex-G.I. staff" and some new ideas in appliance selling and service.

Sam Nides, head of the firm, who was formerly advertising manager of R. Cooper Jr., Inc., Chicago G-E distributor, and later branch sales-manager for Kelvinator Corp., Chicago, calls himself a "transplanted G.I." A major in the air corps during World War II, he served as an assistant executive officer at Lowry Field, Denver, and having married a Denver girl, determined to settle in the Colorado Capitol as an appliance retailer.

The result is a $70,000 air conditioned appliance store which features a 60-ft. all-glass front 14 ft. high, and a depth of 85 ft. The building is built entirely without posts and pillars for clear view from front to rear, and has four rows of 65-ft. candle fluorescent lamps, with 20 incandescent spotlights for "highlighting" particular appliance displays.

Along the rear wall are a complete operating model laundry, complete operating model kitchen, and a dramatic, oval stage, on which featured appliances will be shown, and cooking school or special appliance demonstrations carried out.

As a novel feature, the 85-gallon electric water heater, which provides hot water for the kitchen and laundry is operating in plain sight on the sales floor, so that customers may feel how cool the surface remains through proper insulation. To the right is an air conditioned, completely enclosed room, which shows two console radio-phonographs, together with a chair, rug, lamp, bookcases, etc., to simulate a "corner of a living room."

The service shop in the rear employs three mechanics, is departmentalized into separate appliance brackets, and co-operates with two "rolling shops," which carry complete refrigeration parts, electric range parts, water heater parts, and all tools for "on the spot" jiffy appliance repairs.

Small appliances down the center of the store are displayed on novel block tables which may be turned around, and converted into various geometrical shapes at a moment's notice to alter the display appearance of the interior.

Separate refrigerator, range and conventional washing machine departments are on the left wall, radios, phonographs and records on the right wall, and small appliances in the center.

NUMEROUS OUTLETS PROVIDED

There is one flush high-power-loading outlet for every 100 sq. ft. on the sales floor, so that it will be possible to operate package air conditioners, or small electrical appliances with equal facility anywhere in the store.

The store started out with three outside salesmen and two floormen, the outside crew to be increased to eight as soon as appliance deliveries warrant it. "We're getting outside right from the outset," Mr. Nides grinned. "Making user calls, and introducing the store to Denver as rapidly as possible."

The office at the rear is enclosed by a curved blond-wood counter, the outer surface furnished in plastic red imitation leather, with "G-E" outlined in chromium studs.

Opening ceremonies included a variety of clever promotions. A press party was held for the editors of Denver newspapers and magazines, the Governor, Mayor, and other officials. During the opening week, all theater patrons of a movie house across the street were presented with tickets to be filled out and deposited in a box at the Nides store, and on Sept. 16, there was a drawing, awarding a coffee-maker, table radio, sunlamp, and a steam electric iron. This brought many extra visitors into the store.

'LUCKY' TICKETS MEAN SALES

In order to make actual sales during the opening week, tickets were distributed at the door, numbered in sequence. Then, one ticket number was drawn for each major appliance available for immediate delivery, and thus the first 10 numbers drawn for refrigerators walked away with new refrigerators, the next 13 were awarded the opportunity of buying electric ranges, and so forth down the line. All other customers holding numbers were placed on the store's brand-new priority list immediately. In addition, the movie house ran a short trailer with scenes depicting the store, its selling operation, service department, simulated living room, closing with an invitation to visit the store across the street.

Opening of the Nides General Electric Appliance Co. was closely tied in with the simultaneous opening of the Camellia apartments at 13th and Grant Sts. in Denver, laying claim to being the most modern apartment house in the United States, with 121 apartments all equipped with complete G-E model kitchens throughout. The store is "ex-G.I." throughout, every employe having been in military service, including even the porter, who was an army air force pilot.

Advertising Impressions in 1947!

✓ Building now for future sales!
✓ Reaching every type of prospect!
✓ Blanketing every dealer's territory!
✓ Selling all Frigidaire products!

You're twice as sure with two great names
Frigidaire made only by General Motors

Home Economists, too, are reached month after month with information about Frigidaire which they pass along to their thousands of students, the housewives of tomorrow.

The Rural Market is being cultivated by Frigidaire advertising in farm publications, specially keyed to "sell" the new prospects being created as rural electrification is extended.

PLUS . . .
more millions of impressions

25 to 50 million per month is the circulation of Frigidaire publicity stories in newspapers and magazines all over the country, "selling" Frigidaire as America's favorite.

13 million per week is the circulation of the Nancy Sasser newspaper column, "Buy Lines." Women readers from coast-to-coast follow Nancy Sasser's good advice to "Buy the Favorite . . . buy Frigidaire."

Many Feature Motion Pictures use Frigidaire products when home appliances are shown in a scene. This dramatizes Frigidaire to the millions of theatre-goers who see the movies.

Important Shows and Exhibits from coast-to-coast feature Frigidaire household appliances, and are seen by added millions of homemakers.

THESE TURN PROSPECTS INTO CUSTOMERS

Advertising Signs
Frigidaire provides a wide variety of signs—outside flat, vertical, hanging, single or double. Also inside signs for window, counter or department.

Famous "Selling Station"
More than 3000 Frigidaire Dealers, large and small, have made their appliance departments among the most modern in the community with this "Selling Station."

Depend on
FRIGIDAIRE
to do things RIGHT!

U. S. PAT. 2,219,393 NEW ZEALAND PATENT 82,359
CANADA PAT. 394,209

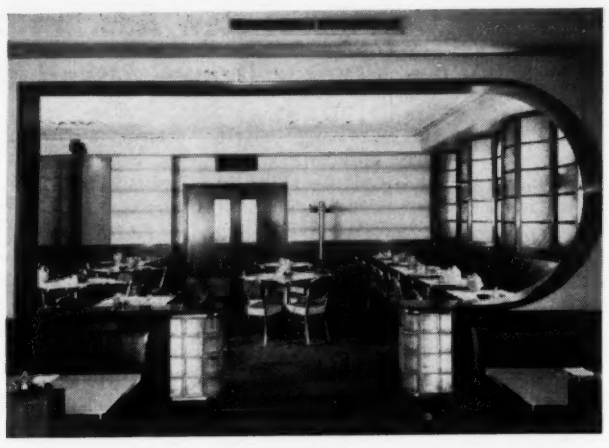
COMMERCIAL DOMESTIC

EVAPORATORS
Originators and Developers of
WATER DEFROST
Humid Air Evaporators

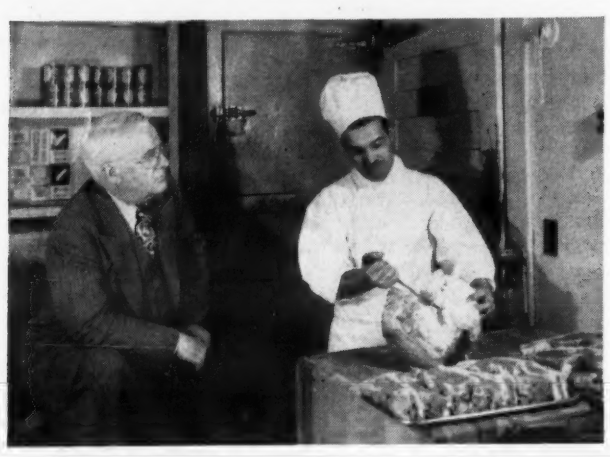
Leading the field in the development of refrigeration, evaporators for use on high and low temperature applications, "RECOLD" products have a dependable record of performance.
"If it's a 'Recold'—it's right."

REFRIGERATION ENGINEERING, INC.
7250 East Slauson Ave.
Los Angeles 22, Calif.

Omaha's Castle Hotel Uses Variety of Conditioning, Refrigeration Machinery

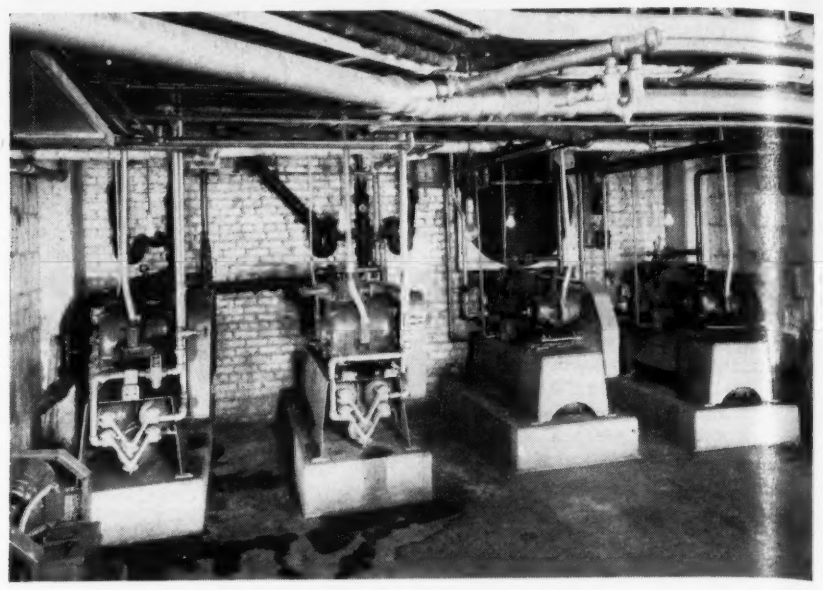


Ducts in the coffee shop (above left) and the Terrace Room (above right) had been built into decorations around ceilings. Problem arose when it was found ducts were too small (space was enlarged after they were built). Answer: More coil and condenser capacity and a 30° coil which is said to make for a very dry condition and less c.f.m. Steps lead from coffee shop to Terrace Room.

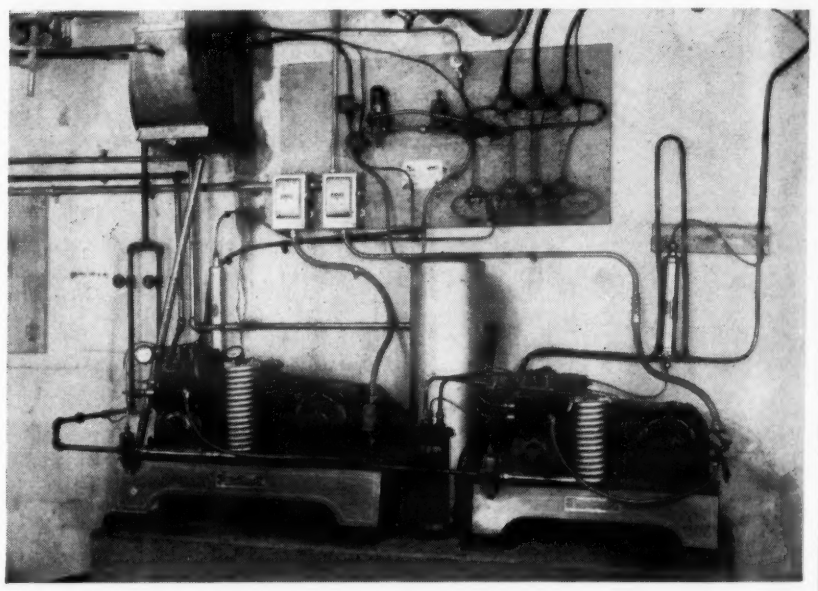


George A. Papineau, Castle manager, watches chef boning out a ham in kitchen. Directly behind them is metal-covered butter box and long sharp freeze box with plate coils which extend under butter box and shelf of canned goods. Door back of chef opens into vegetable cooler which joins meat walk-in (not shown). All boxes are operated off two W-100-FC units.

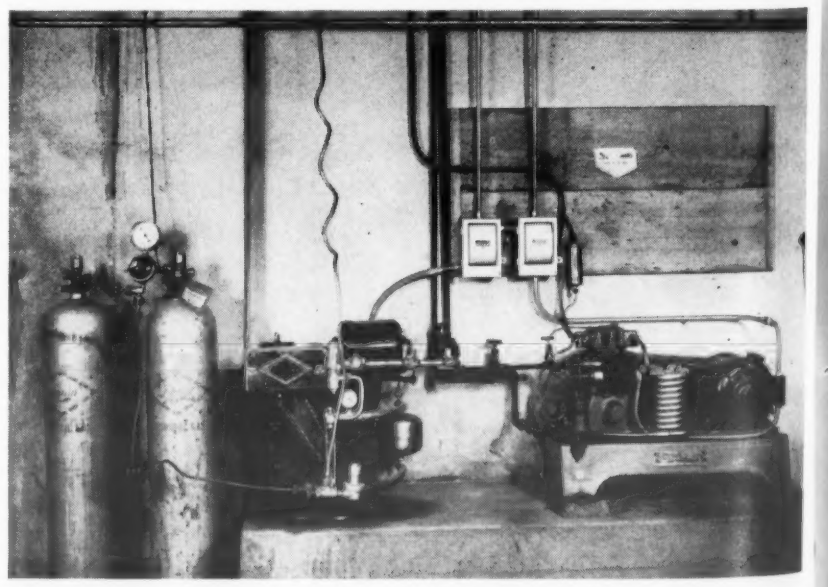
Beams in rustic Westward-Ho bar (above) are hollow and act as air conditioning ducts. Hotel officials expect to air condition the big ball room and about half the sixth floor next year. Besides units shown on this page, the hotel has a 1-hp. W-100-FC unit on a 6 x 8 walk-in beer cooler and a W-50-FC on a box in ball room kitchen.



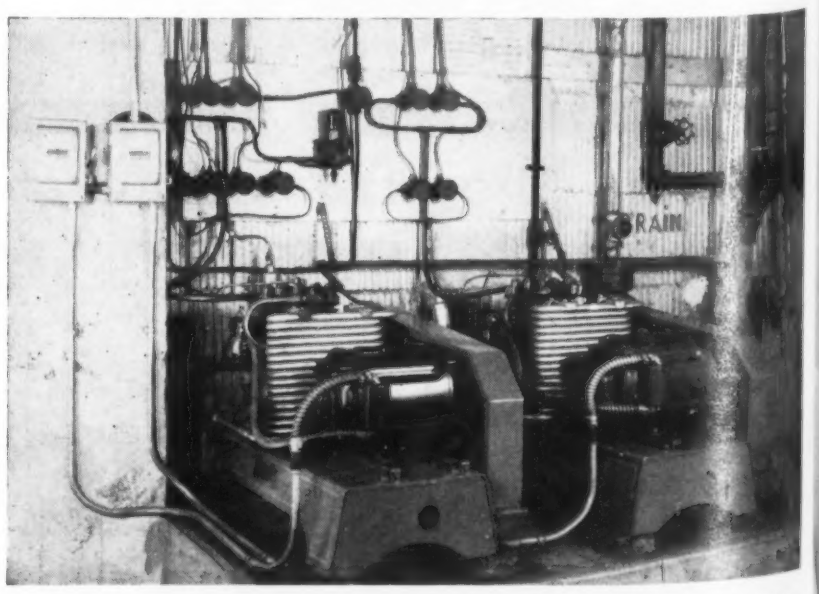
Castle hotel in Omaha has 80 tons of Brunner air conditioning units and about a dozen commercial refrigeration units. Layout shows some of equipment and some of areas they serve. At right in picture above are two W-15000-FH Brunner units that cool coffee shop, Terrace Room, and Westward-Ho bar. Units are connected to McQuay central coil and blower unit. Lobby, barber shop, offices, and two private dining rooms are air conditioned by two W-25000-FH units at left. Many short cuts were made by utilizing former ventilating system. All spaces are heated through same ducts that carry refrigerated air from central system, which has elaborate filter system.



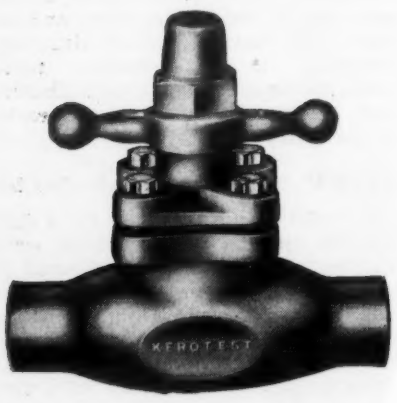
These two Brunner units refrigerate two four-door Pick reach-ins (top and bottom service) and an 8-ft. salad counter in the coffee shop. A W-75-FC Brunner unit (not shown) is connected to a Temprite water cooler, which serves about 1,200 glasses of water per day.

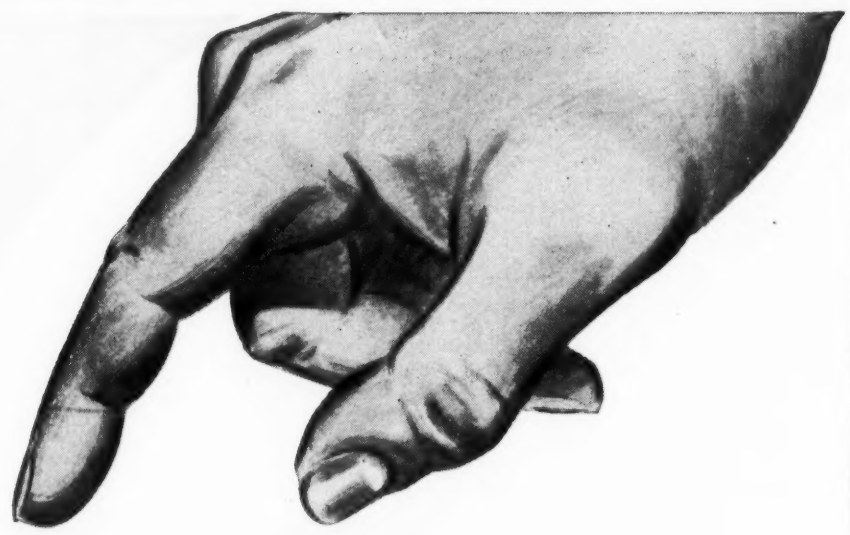


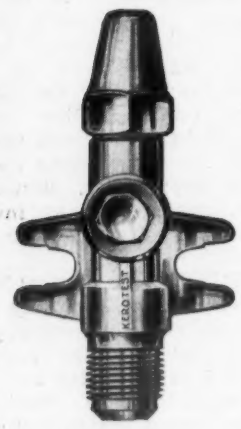
The soda fountain in the coffee shop is operated by this Brunner unit. Note also the Liquid Carbonic carbonator. Units running coffee-shop fixtures are located in the basement directly under the fixtures.



This picture shows the two W-100-FC Brunner units off which are operated four kitchen boxes—two 6 x 10 x 8 walk-ins for meats and vegetables, a long sharp-freeze box, and a metal-covered butter box.



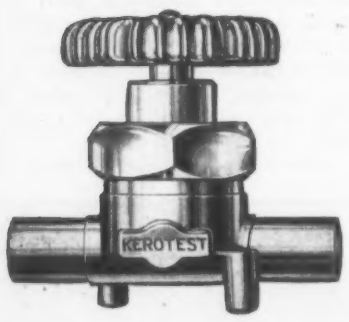


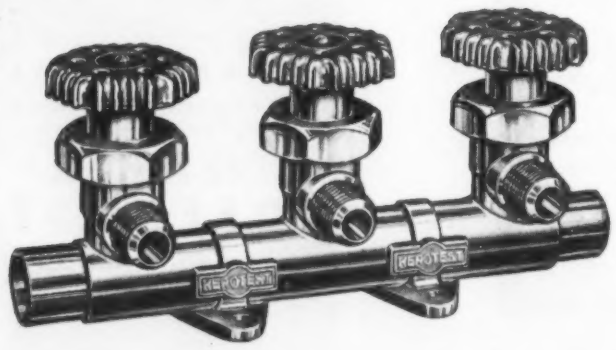


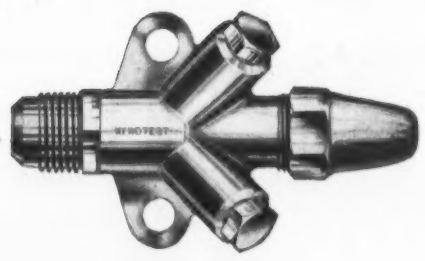
HERE ARE THE *NEW*

KEROTEST VALVES YOU ASKED FOR..!

Your demand has been our command . . . and here are five of the new KEROTEST Valves that will give you still more of the characteristics you look for most in valves. More compactness . . . greater ease of installation . . . fuller efficiency . . . and greater dependability and service than ever . . . with economy. For the finest and newest in refrigeration and air conditioning valves . . . see your KEROTEST Wholesaler.







See your KEROTEST *Wholesaler*

KEROTEST MANUFACTURING CO.
PITTSBURGH, PA.

AMERICA'S FIRST NAME IN QUALITY VALVES

Navy Ships, Tightly Sealed for Modern War, Make Air Conditioning a 'Must'

SYRACUSE, N. Y.—The increased power and destructiveness of modern weapons have made it imperative to seal ships tighter and provide greater cover and protection for personnel, making air conditioning of Navy vessels increasingly important, according to Commodore R. Morgan Watt, Jr., deputy chief of the Material Division, Navy Department.

During a visit to industrial plants engaged in Navy work in the Syracuse area, Commodore Watt told Carrier Corp. officials, including Capt. A. E. Stacey, Jr., U.S.N.R., that mere ventilation is no longer the answer.

"Control of temperature and humidity to afford our men the opportunity to be at their fighting best at all times—even with the ships sealed to insure the greatest degree of personal safety under fire—is of major importance in the modern ship," Commodore Watt continued.

"It is more dramatic to talk about guns and other attack weapons, but such things as air conditioning and refrigeration are getting prime consideration. Ours is a Seven Seas Navy and must be ready to go into action anywhere in the world at any time with our manpower in the pink of condition. Temperature and humidity control aboard ship nullify the worst outside elements. Refrigeration assures proper food in good condition.

"Fortunately, thanks to Captain Stacey, we had the problem of how to air condition our fighting ships, especially the big, new submarines, pretty well licked before the start of World War II. But the need of air conditioning, foreseen before the war and proven in combat, has become more critical with the increasing power of ship's propulsion equipment and the greater destructiveness of new weapons.

"Battle stations, as well as living quarters, must be closed as tightly as practicable. Thus air conditioning becomes a vital necessity."

Dept. Store Finds Air Cooled Comfort Of Record Booths Means Bigger Sales

DENVER—Although none of the remainder of the store is air conditioned, the Denver Drygoods Co. has found that it "pays off" to completely air condition record listening booths and separate display rooms for console radio-phonographs, according to Jim Hill, buyer.

Six air conditioned record rooms, 6 x 8 ft., a 14 x 18 radio console room, and a 14 x 18 foot radio and television room are kept at comfort conditions the year-round by a 15-ton packaged air conditioning unit installed in a fourth floor window of the store behind the enclosures.

The package unit, which is mounted directly over a window for 100% pure air intake, and condenser cooling, is equipped with two galvanized metal ducts, which deliver cooled air into the listening booths and radio display rooms by means of a network of 8 x 10 in. ducts, with two grilles per room.

IN AT TOP, OUT AT BOTTOM

The conditioned air enters at the top of the room, and is pulled out by a return duct near the floor in all of the listening booths, as well as the radio-phonograph display room.

"Air conditioning has been a tremendous help to sales," Mr. Hill said. "There is no comparison to the sales volume we can achieve without cooling and our present turnover. The average record customer, for example, expresses an avid desire during hot weather to cool off in comfort while listening to favorite music, and the chances of selling a complete album instead of one or two records are much multiplied when a customer is willing to spend enough time to listen all the way through."

CUSTOMER MORE RECEPTIVE

The same is true of radio-phonograph console merchandising, according to Mr. Hill. In the cool comfort of the two large rooms, each done in pastel colors and equipped with comfortable carpets, furniture, and lamps, the usual customer is willing to relax and spend plenty of time while the features of expensive combinations are presented one by one —whereas in the past, the close atmosphere of the non-air conditioned room would not permit more than a few moment's time per customer.

C. G. Hokanson, Inc. Begins Work on New Office-Warehouse

WEST LOS ANGELES, Calif.—A 20,000 sq. ft. office and warehouse building is being erected here for C. G. Hokanson, Inc., heating and air conditioning distributor, according to C. G. Hokanson, president.

The building, which will be located near the intersection of Sepulveda and Olympic Blvds., will be of reinforced concrete construction with ample loading platforms.

Plans are also underway for the construction of a building on Wilshire Blvd. in Beverly Hills to be used as general offices and sales space, according to the announcement.

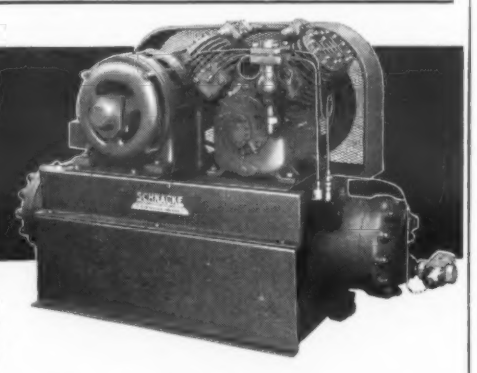
18-Story Building To Use 75 Airtemp Packaged Conditioners

DALLAS, Tex. — The 18-story Keasler building, located downtown here, will be completely air conditioned with 75 Chrysler Airtemp 5-ton packaged units.

It was decided to use packaged units after two Airtemp 5-ton units had been in operation for a season in the private offices of the owners of the building.

Roy Matthews Engineering Co., Chrysler Airtemp Four Star dealer who is installing the units, expects to complete the job in time for the 1948 summer season.

SCHNACKE *Complete* CONDENSING UNITS



SCHNACKE units have replaceable refrigerant-cooled steel cylinder sleeves, complete pressure lubrication, balanced forged crankshafts, individual cylinder liquid relief, individual cylinder valve cage assemblies, built-in suction strainers, sealed crankcase, balanced pressure shaft seal, insert type bearings, water or air cooled heads, and many other advanced features.

Condenser is ASME approved, fin tube, cleanable type mounted in sturdy base. Water control valve and pressure controls installed.

Illustrated above is the "F-C" Model, with capacity from 10 H.P. low temperature to 25 H.P. Air Conditioning. T-C Models 5 to 15 H.P. available. Models less condenser, from 5 to 50 H.P.

Our new foundry now makes deliveries on most models possible in one to two weeks.

Complete engineering data sent promptly upon request.

SCHNACKE, INC.

1016 E. Columbia St., Evansville, Ind.

★ NUMBER THREE ★

Opportunity for Dealers

MANY OF THE DEALERS we have talked with recently display an odd apathy toward air conditioning. Sure, they believe that air conditioning is going to be a big business "some day," but they don't see it as part of their present picture.

Some few specialty dealers (usually those who have been in business for more than a decade) will admit that they *should* know a great deal more about air conditioning—and how to sell it—but they have been too busy to do much about getting into this highly promising field of endeavor.

It's a fact that air conditioning hasn't been in the headlines during this hectic postwar period, and possibly that's why dealers presently are apathetic toward the profit possibilities it holds for them.

Here's one reason why dealers haven't heard much about air conditioning lately:

Appliance manufacturers channeled their scarce sheet-steel, castings, and electric motors into those most-demanded replacement items on their list of products. In a harried effort to catch up with the backlog of orders for refrigerators, ranges, washers, etc., they have neglected—understandably—to push the air conditioning business.

Some of the manufacturers who specialize in air conditioning, like ourselves, have been working night and day to keep the air conditioning business—and market—alive. But our backlog of domestic orders—plus the pressing export demand—has been so great that we've been in no position to promote future demand. Dealer inquiries have been embarrassing to us, because we couldn't promise much in the way of deliveries.

Some day in the not-too-distant future, however, America's enlarged factories are going to roll out so many automobiles, refrigerators, and widgits that our consuming populace will be stuffed up to the eyebrows with the conventional, well known "aids to better living."

When that time comes, specialty dealers will *welcome* the "plus business" which the sale of air conditioning units will offer them. Will they be ready and well-equipped to capitalize upon the world's latent desire for air conditioning? Well, we hope so. This series of advertisements is dedicated to the purpose of educating specialty salesmen the world over to this belief:

Air conditioning *is* useful. It *is* wanted. It *does* help mankind. And air conditioning units *can* be sold at a profit.

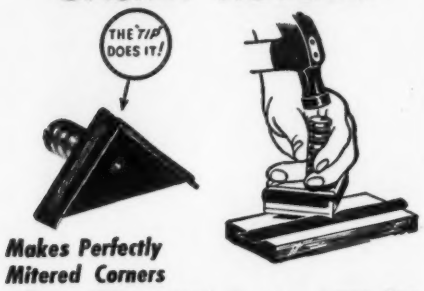
But make no mistake about this: Air Conditioning must be *sold*. Within the very near future it won't be a "demand item." As matters stand now, specialty dealers seem to be just a little bit scared of the air conditioning business. But they needn't be. Air conditioning holds forth more promise of expansion than any other product on the specialty selling horizon.

This is one of a series of 26 advertisements dedicated to the progress of the entire air conditioning industry by

NEVINGER MFG. CO., INC.

GREENVILLE, ILLINOIS

JARROW DOOR GASKET NOTCHER



Makes Perfectly Mitered Corners

The protruded rounded tip of a Jarrow Door Gasket Notcher takes out the precise amount of rubber necessary to form a perfect non-bulging gasket corner that will not leak air. Easy to use—merely place tool on gasket, strike it with a hammer and a perfectly cut gasket results. Blade may be easily removed for replacement or resharpening. Save time and money by ordering one from your wholesaler.

Only **$4.98**

JARROW PRODUCTS
420 W. LA SALLE ST., CHICAGO 10, ILLINOIS

Open, Self-Serve Refrigerated Display Cases Prove Valuable Sales Volume Boosters

By John F. Staples, Sales Manager, C. V. Hill & Co., Inc.*

Speaking for ourselves, and I believe this is true for the major manufacturers of refrigerated fixtures, the first aim in designing new refrigerated equipment is to present to the shopper the greatest merchandising appeal for the food products displayed.

The second aim is to secure adequate refrigeration while still retaining the merchandising features. Another aim is to produce a fixture which conforms in general appearance with the other fixtures for which the manufacturer is known.

Display methods and equipment are undergoing constant changes. Present-day practices may become obsolete tomorrow. Older markets are modernizing; installing new fronts and remodeling. New markets are opening up daily; large organizations are steadily expanding their market operations, usually with larger and more complete markets, which become complete shopping centers in some cases.

When I first entered the refrigeration business in Florida, 20 years ago, the average food store weekly sales were less than $1,000. A store with sales over $2,000 was a large market. Even as late as 1935, a market with weekly sales of $5,000 was outstanding. Today, a market must do over $50,000 weekly or $2½ million yearly to be outstanding. There are several such markets right here in Philadelphia.

This expansion has come about because of the major change which has developed in food merchandising within the last few years—self-service. I don't know who started self-service—it is not entirely new by any means. The first self-service, I remember, was putting my penny profits from the sales of S.E.P. in a gum-vending machine, 40 years ago, in the old Lake Shore Station in South Bend. There was variety also as I had to decide between Pepsin, California Fruit, and Sensen.

It is a thrill today to shop from the wonderful displays in such markets as the Penn Fruit Store at Market and 19th, or the Food Fair on City Line, or many others you know of. I always buy something from their display whenever business takes me there. It may be some cheese, a Persian melon, or anything else with eye appeal.

There have been many steps forward in self-service since these penny gum machines. I will only mention a few—the wrapping of bread made *it* self-service—this was followed by cakes and pastries. The old square cans in a rack used by N.B.C. have gone, replaced by conveniently packaged cookies for self-service. Spaghetti, sugar, and many other items rapidly became packages to fit into self-service.

The supermarket is supposed to have started in California and from what I have seen out there, they did get the jump on the east coast. But we are catching up rapidly, and some of the finest supermarkets now are in the east.

Perishables are the latest food items to fit into the self-service picture and as far as we here are concerned, this is the most important development in food merchandising. We are in the midst of this change in buying habits already.

There have been closed dairy self-service display refrigerators for several years. With their easy sliding doors and bright lights, they have increased dairy sales appreciably over previous sales from reach-in doors in walk-in coolers, or display case storage.

No Sliding Doors

Then, the open dairy display case was developed and just because of the fact that it is possible to reach for a package of milk, butter, or cheese, without sliding a door, there has been a tremendous increase in sales of dairy products from open dairy display. This is especially true with multiple-shelf open display.

I know of two supermarkets in the capital of Mississippi, owned and operated by one concern, with similar volumes weekly. The lay-outs and equipment are similar, except that one has open multiple-deck dairy, while the other has a sliding door dairy refrigerator. The store with the open display has three times the volume of dairy sales.

I have learned from one large organization that they expect to triple their dairy business every time they install open dairy display in a store. This experience seems to be universal. Open self-service display does effect sales. I understand from the Department of Agriculture that cheese sales have increased from 5 lbs. per capita in 1944 to 7 lbs. per capita in 1947. No doubt, a large amount of this 40% increase has been due to open display of dairy products.

Research on 'Shelf Life'

Within the last two years, the refrigeration of self-service vegetables has taken remarkable strides, both packaged and in bulk. Not only does refrigerated display bring about an increase in sales, but shelf life of produce is increased remarkably. Tests were made in stores recently by the Ohio Agriculture Experiment Station. Their report entitled "Salable Life of Seven Vegetables," recently published, reads as follows:

"Crispness and Appearance Retained Longer by Pre-packaging and Refrigeration.

"Pre-packaging and mechanical refrigeration together retained the vegetables within 95% of the original weight for periods ranging from 6 to 24 days; or, in other words, from two to seven times longer than any of the other treatments. This combination of factors extended the shelf life of these seven products more than any other combination tried in these tests."

The table shows that various vegetables were kept under ordinary room conditions, with fine cracked ice, and in mechanical refrigerated fixtures. Bulk green beans became 100% unsalable in five days under ordinary room conditions, but were 38% salable at five days with cracked ice, and 94% salable under mechanical refrigeration in open display.

Bulk broccoli was entirely unsalable in two days under ordinary room conditions, 48% salable after five days with cracked ice, and 92% salable in a mechanically refrigerated open vegetable display. Results with cauliflower, endive, lettuce, and green peppers were substantially the same. Only celery stood up without refrigeration with 32% salability after five days.

Of course, the merchant is not interested in produce salable life for long periods. For his reputation, he depends upon quick sales and frequent turnover, but he must be able to maintain a wide variety and adequate quantity of vegetables for selection by his customers. And, some

(Concluded on next page)

*Presented as part of a symposium before the October meeting of the Philadelphia ASRE section.

Are You Looking for An Easy Way to Handle Stoves, Refrigerators and Freezers?

Solve Your Problem with the New

ROLL-OR-KARI DUAL TRUCKS

Patented Step-On-Lift • Folding Handles
Capacity 1000 Lbs. • Shipping Weight 40 Lbs.

WRITE TODAY • PRICE $35.00 F. O. B.

THE ROLL-OR-KARI CO.
MANUFACTURERS
ZUMBROTA • MINNESOTA

We do this in self-defense

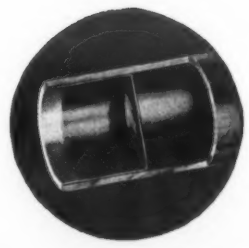
... but see how it works to your advantage

For many years we've manufactured small diameter tubes of the highest accuracy commercially obtainable.

One of the reasons for this is the consistent use of the bore telescope on our redraw tube stock . . . for a *small* defect in a large tube would mean a *large* defect in a small tube.

Since a tube with an imperfect bore could not escape our final tests and inspection, it would be rejected and scrapped . . . hence, we have a mighty good reason for ferreting out any possible imperfection right at the start. It saves *both* of us time and money—and assures a superior product.

THE AMERICAN BRASS COMPANY — FRENCH SMALL TUBE BRANCH
Subsidiary of Anaconda Copper Mining Company
General Offices: Waterbury 88, Connecticut
In Canada: ANACONDA AMERICAN BRASS LTD., *New Toronto, Ont.* 47412



Precision-made tubes in Copper, Brass, Bronze and Copper-Nickel Alloys; in sizes from .015" O.D. to 1" O.D. with wall thickness down to .004"; round, square, or irregularly shaped; in coils, straight lengths or special forms. Bourdon tubes, thermal expansion bulbs. And, of course, Anaconda Dehydrated Copper Refrigeration Tubes with the famous Cup Seal*.

*Patent Applied For

ANACONDA from mine to consumer
Anaconda Precision-Made Tubes

★ PUFFER-HUBBARD MFG. COMPANY GRAND HAVEN MICHIGAN

To Preserve it "PH"- it with a REACH-IN Cabinet

PUFFER-HUBBARD

ANOTHER CASE OF GOOD REFRIGERATION ENGINEERING

- Electric Welded Steel Frame
- Welded Interior Porcelain Lining
- Porcelain Exterior
- Exclusive Grad-u-matic Air Conditioning
- The only refrigerator with this patented feature

Also Manufacture
Dough Retarding Cabinets
Self Serve Vege-Cases
Dry Beverage Coolers
Self Serve Dairy Cases
Write for information

All these plus

All these features and many other refinements are combined into every Puffer-Hubbard cabinet to make it today's best buy. Solid door or glass door models with Thermopane Triple Glass. Also available, Icemaker units.

PUFFER-HUBBARD MFG. CO.
★ *The Mark of a Good Case*
GRAND HAVEN, MICHIGAN, EST. 1898

Change-Over to Self-Service Meat Dept. Ups Labor Use Through Increased Sales

(Concluded from preceding page)

items may need to be held several days, if sales are slow, without suffering a substantial loss.

To the housewife, usable life of vegetables is of prime importance. At the NARGUS convention in San Francisco, I walked up to a lady looking over our display of refrigerated vegetables, thinking she might be some market owner's wife, and asked if I could give her any information about our fixtures.

She said, "Oh, I'm not in the grocery business. I'm just visiting San Francisco, but if anybody in my town kept vegetables like that, I would do all my shopping there."

I understand the Western Grocers' Association has spent a large sum this last year experimenting with the packaging and refrigeration of vegetables at the farm. Packaged produce would be refrigerated until it reaches the ultimate consumer. The tremendous savings in produce losses that will result from this will justify the expense many times over.

In self-service, up to this point, there has been nothing to hinder the expansion of self-service fixtures other than the manufacturer's ability to produce them. The obvious success of their operation in one store speeds their installation in competing stores, and the limited supply of usable wrapping materials has been adequate, because it was only necessary for cheese and a few other items.

Waiting for Cellophane

With meat, the situation has been different. There has only been a small amount of wrapping material available suitable for red fresh meats. I know of one large operating chain here in Philadelphia who has had its self-service fixtures in a warehouse for six months just waiting for cellophane so they can convert one of their markets to self-service.

I just heard the other day that one of the large manufacturers of wrapping material was going to start sales promotion on visible packaging of meats as they expected conditions of supply to improve early in 1948.

Labor has been afraid that self-service meats would reduce jobs, and has refused to cooperate in some sections, particularly along both coasts. However, where self-service meats have been tried, results have been very satisfactory to labor. Work has been steady throughout the week without rush periods formerly encountered and more help has been required because of increased volume.

Market operators have been reluctant to take the risks involved in the radical change from service to self-service meats. It was thought that the better-class meat market would lose business if the customer could not get the personal service to which she was accustomed.

Right in Philadelphia, a high-class established meat market out on Fifth St. recently changed over to complete self-service with a 50% increase in sales the first week, double the second week, and I just heard today, that they are now selling four times as much meat as previously.

Many large organizations within the last few months or weeks have changed their expansion or remodeling programs to include self-service meat display. This is possible because the latest open fixtures will maintain the 28° to 36° shelf temperature which is desirable for maintenance of the appearance as well as the condition of wrapped red fresh meats.

In addition to the development of refrigerated self-service fixtures for dairy products, produce, and meats, frosted food fixtures have been on the market for some time. Although considerable progress has been made with these fixtures, there are many "bugs" to be ironed out and we feel present models of this fixture are much farther from satisfying the consumer and retailer needs than any other of the developed self-service fixtures.

Temperature for ice cream and fruits is far from satisfactory. Unsightly appearance of packages due to excess frost is difficult to eliminate and still retain temperature and adjustable display.

Research is being conducted on the development of self-service of candy since chocolate must be refrigerated in the summer months to retain its color. Refrigerated pastry displays have been sold and there is much interest in their development right now.

All this spells savings in food losses and increased sales, and of course, profits for food merchants. That means more business and responsibilities for all of us here. Refrigeration of open fixtures requires several times greater condensing unit capacity than closed fixtures. As an average, 1 hp. of condensing unit will operate about 30 ft. of service display cases. For normal defrosting cycle operation, 1 hp. will only refrigerate 10 ft. or 11 ft. of open single deck display, and only about 7 or 8 ft. of multiple deck dairy or frozen food open display.

Trend to Larger Units

Where the average market used to have only 1½ hp. to 3 hp. or so in the basement, the same size market may now have 7½ to 20 hp. Where air-cooled units are used, just think what problems the reduced capacity caused by their compressor heat presents, even in well-ventilated basements. Water-cooled units become necessary, possibly evaporative condensers.

While we formerly hooked up one condensing unit on the cooler, meat, and dairy cases, now a separate condensing unit is required on each type of fixture for efficient and economical operation.

Then, we seem to have unusual weather here, just like they have in California, only here it is the humidity. Humidity within open fixtures adds to the compressor requirements. We try to compensate for summer heat and humidity by air conditioning or using huge fans in markets.

I was in one store on a hot, humid day recently, and the clerks had set a 2 ft. fan blowing directly at one of our triple deck dairy displays to help cool the store. I doubt if the store was cooled any, but there certainly was no refrigeration for their dairy products.

I was also in one store, the other evening, that had no ventilation, except the entrance door and one back door. With very little change of air in the market, the humidity was so high it was condensing on the fixtures and running on the floor.

Ventilation and air conditioning problems increase with open fixtures. Tests have shown that it is very difficult to reduce the temperature of meats and vegetables after they are wrapped in cellophane. This means that processing rooms should be cooled so the meat and vegetables will not rise in temperature much during packaging.

Drafts from ventilating and air conditioning ducts and fans must not draw the cold air from open fixtures; but at the same time, removal of humidity by ventilation or air conditioning is called for.

All of this means a tremendous increase in refrigeration requirements in food markets in the years ahead as these trends develop. There is still much room for improvement of fixtures so that better temperatures and humidity can be obtained.

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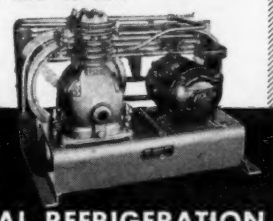

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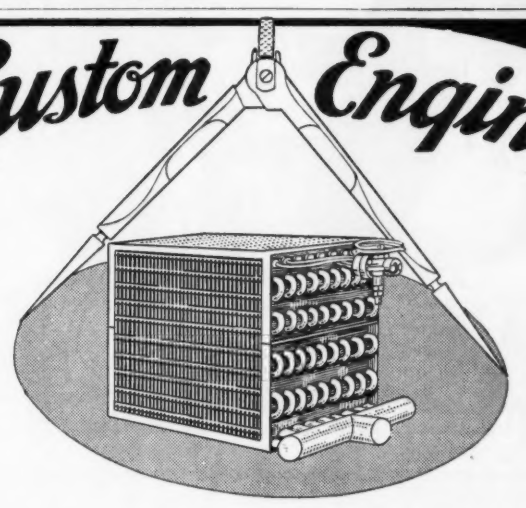

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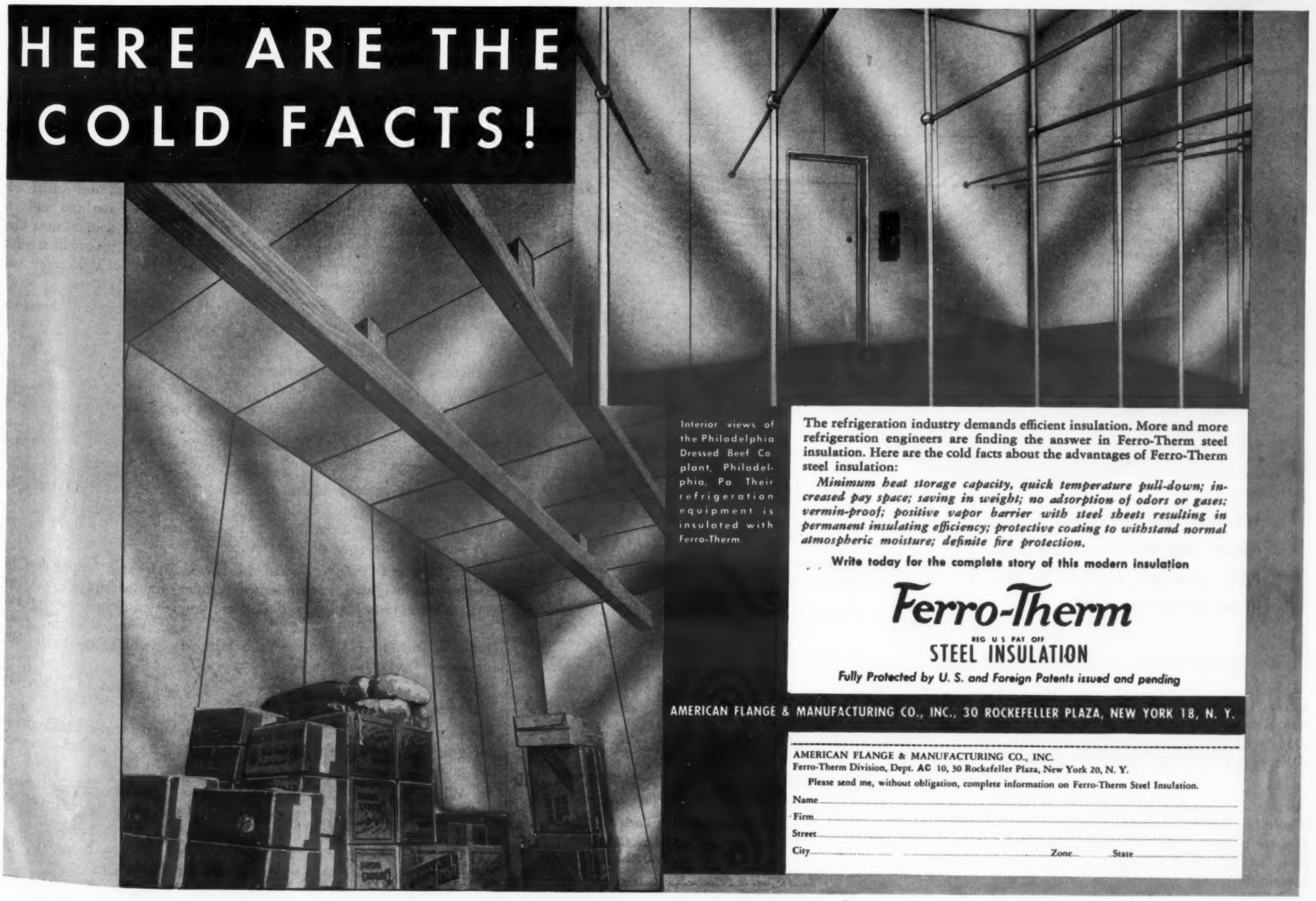

Interior views of the Philadelphia Dressed Beef Co. plant, Philadelphia, Pa. Their refrigeration equipment is insulated with Ferro-Therm.

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They'll Do It Every Time . . . . By Jimmy Hatlo

MIND YOU, GRIMES, THIS IS JUST A SUGGESTION--AS I ALWAYS SAY, HIRE 'EM ON THEIR MERITS ONLY. BUT--UH--THIS IS HERMIE, MY WIFE'S NEPHEW--ER--MAYBE WE COULD STRETCH A POINT AND GIVE HIM A CRACK AT THAT OPENING IN THE PROMOTION DEPARTMENT...
IT'S ONLY A SUGGESTION, KID-- SO IS A SHOTGUN. HERMIE GETS THE PROMOTION JOB OR HE BECOMES THE NEW PERSONNEL MANAGER. TAKE YOUR CHERCE--
NEPHEWS, COUSINS, GRAN'PAWS, GRAN'MAWS! YOU CAN'T MOVE AROUND HERE WITHOUT BOWLING OVER ONE OF BIGDOME'S RELATIVES
THAT BIG BRUNETTE HE SUGGESTED INTO THE ART DEPARTMENT-- WHAT KIND OF MERITS WAS SHE HIRED ON--?
POOR OL' GRIMES! HE JUST SITS AND SITS. BIGDOME DOES ALL THE HIRING AND FIRING...
BEH-BEH! BOO -BEH-BEH(BOO- BEH
JIMMY HATLO
PERSONNEL MANAGER
RUSH
WONDERING--WHY A PERSONNEL MANAGER, ANYHOW?
THANX TO G.T. COOKE, 190 HEWARD DRIVE, TORONTO, CANADA
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8-25

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Savings Benefit Posterity; High Taxes Cheat Your Sons

NOT long ago we were arguing with a younger-generation intellectual about the "right" of corporations to withhold profits for reinvestment in their businesses. He contended that corporations had "oppressed" Labor for generations in this country by saving up profits instead of paying them out in the form of higher wages and (reluctant concession on his part) dividends.

His argument was that our fathers and grandfathers wouldn't have worked so hard, and would have been paid more, had corporations not been so selfish prior to Roosevelt. The answer was obvious:

"Yes, but would *we* have been living so well, and would *our* nation have been so strong? It was those accumulations of capital–*saved out of profits*–which built our railroads, discovered our mines, underwrote the digging of our oil wells, erected our factories, spurred on our inventors, and made America strong enough to lick two powerful enemies simultaneously on both sides of the globe.

"And, what's more, these corporate savings made life easier, more interesting, and more promising for you and me, and *our* children."

Half a century ago men worked twelve hours a day, and six or seven days a week. They supplied their own old-age security. Some of them got rich. Most of them didn't–but they were happy. And all of them together built up the mightiest, most prosperous, most democratic nation in all history.

And with their hard work and their investment in America's future, they succeeded in making life easier, more delightful, and more rewarding for their sons and daughters and their grandchildren. Could their departed souls return to the United States now, and see the results of their handiwork, they'd say that their efforts were worthwhile.

One thing that keeps us all going and willing to undergo turmoil and hardships is the hope that, by our efforts and self-denial, our offspring will live better and enjoy life more than we have, and outdo us. Loving parents are much prouder of a child's minor achievement than of any major victory they themselves ever win, and they will sacrifice any present pleasure or gratification if they think that sacrifice will redound to the ultimate credit of their sons and daughters.

This observation is true for personal decisions, but not always for political decisions. Witness this phenomenon:

We Americans are prone to favor the "underdog." We cheer the challenger and boo the champion. We deride the Boss, envy the residents of a beautiful home, and pass on snide gossip about the woman in a mink coat. And thus it happens that too many of us are prone to feel that successful men have become so because they cheated their employes, rather than because they were imaginative, inventive, had vision and understanding, and were willing to work extra hard.

This is a national superstition which works to the disadvantage of our own Free Enterprise System. We forget that successful fathers open up new vistas of welfare, opportunity, and happiness for their beloved sons–and for the sons of their employes.

If, to secure revenge against the envied and hated "upper dog" we condone short-sighted union practices such as gold-bricking, slow-downs, class warfare, intimidation and coercion, thuggery and racketeering–and then turn right around and thumb our noses at savers, investors, inventors, and imagineers–then we deserve the fate which may be in store for us.

And we sentence our children and grandchildren to a life they won't enjoy.

Liberty, competition, higher living standards for our children and our grandchildren, the accretion of our strength as a nation–*these* are the goals which Americans should ressurect.

When we penalize the imagineers and the hard workers through confiscatory taxes and government borrowing, we are transferring our own envy and frustrations onto the backs of future generations.

If we truly love our sons and daughters, we'll try to protect and augment the grand and glorious American Way of Life.

HEALTH CLAIMS FOR AIR COOLING MUST BE WISE

Avery Engineering Co.
Cleveland, Ohio

Editor:

I am all for your point that air conditioning for health is of the essence. We've had entirely too many compromises with good work because we were talking about air conditioning for comfort. Comfort is a weak word and cannot be defined. Maybe it means some kind of a bed quilt. Let us hold to the requirements of air conditioning for health and let comfort fall where it will.

Herbert Laube, president of Remington Corp., goes too far in claiming things for air conditioning units for health. For example, he says it will provide a better complexion and no body odors. That looks to me like a hard one to prove and a bad one to claim. I have smelt more bad odors in an air conditioned room than in one that is properly ventilated. In fact, we all recognize the characteristic stale stink of a poorly conditioned restaurant.

He also claims the old hope that medical authorities indicate air conditioning increases resistance to the common cold. That has never been proved and I doubt if it ever will.

He also claims under extra benefits that servants will be more efficient and contented in a home which has an air conditioning unit. Interesting if true.

I don't want to say these things couldn't be true, but I do say that when we lean on such wild statements that cannot be substantiated, we simply weaken our position and get far afield from air conditioning for health.

LESTER T. AVERY, President

LEHIGH USES UMPIRE BERRY FOR PROMOTIONS

Lehigh Mfg. Co.
Lancaster, Pa.

Editor:

I enjoyed reading your baseball stories in the NEWS. I did not realize that you were such a ball fan or I would have mentioned this before. Charlie Berry, who is an American League umpire, works for our company 100% of his time in the off-baseball season, and part time during the baseball season. In fact, our district managers are always notified of Charlie's schedule as soon as possible and they arrange meetings with customers, ball games, etc., strictly along sales promotional lines.

Charlie is quite a character—"All American" football player from LaFayette, head linesman in the National Professional Ball League, and probably knows more athletes of all types than any other man in the country. I know you would enjoy meeting him, and I am sending a copy of this letter to our district manager in Detroit, Oliver Kesti, suggesting that the next time Charlie is in Detroit to arrange a meeting.

Charlie's pal and particular side kick is Cal Hubbard, whom I know pretty well, and he is also an interesting fellow to know. Incidentally, Cal is a very very sharp bridge player. I have no doubt either of these fellows would add to your fund of stories about baseball, football, and players.

J. C. MILLER

MAN'S INTELLECTUAL GROWTH SEEN LAGGING

20 Elm Hill
Hillsdale, Mich.

Editor:

Since you wax philosophic occasionally, I am giving you the philosophy of my good friend, George H. Benedict, who was the outstanding benefactor of the photo engraving industry during his life. He passed away at the age of 68, six years ago. Somewhat worried in regard to economic and social trends, he expressed his mood in the following lines.

". . . meditating on the recent dates of great inventions, in transportation, communication and manufacturing, beginning with printing (only 500 years old) and the discoveries of electricity and chemistry, in infections and antiseptics and cogitating on what we think we know about Folks, the Earth and Solar System and further considering Evolution, Anthropology, doubtful History, ambiguous Theology, Political theories (isms) Sociological trends and mass (or mob) Psychology, it is a fair conclusion that except for his environment and personal experiences, man is but little wiser today than at the time of Zoroaster.

"By and large, we are trained animals, the majority are content to remain at the level of the herd. Thinkers with vision, initiative, and perspective do not crowd college faculties and politicians reflect the average intelligence and morale of the voters; therefore, ability, thrift, and industry are disparaged, the indigent and drones are coddled, and yet—democracy has fewer fallacies than autocracy—which seems to be the drift.

"We have no proof that life is definitely worth living, but we think it good judgment to respect the doctor's advice and traffic regulations, and we agree that the best government demands the minimum check on individual freedom.

"Personal happiness is a blessing—there is no virtue in doing without it. The worst sin is to take pleasure in causing pain and discomfort to others. The greatest good fortune is to be happily married, next best is to have friends—they are scarce. It is good to desire—but desire in the terms of greed is an affliction.

"We search for Truth which we will never find—because truth is relative. We approve Faith—the mirage of Truth. We commend Doubt—the brake on credulity. We worship God—an ideal beyond the sum total of the expanding universe."

GEORGE H. BENEDICT

This man devoted his business life to the betterment of his industry as a whole, and was the most widely respected and loved by the industry of any person ever connected with it.

I have enjoyed your writings in AIR CONDITIONING & REFRIGERATION NEWS very much, even though I have not taken the time to let you know it. You are doing a good job for the industry. May you live long and enjoy it.

H. G. BOGART, SR.

FINLAND NEEDS BOOKS TO REPLACE LIBRARY

Community Service, Inc.
Yellow Springs, Ohio

Editor:

Would you please give space in your magazine to the following note?

Finland has an excellent and keenly scientific minded Technical Institute, Teknillinen Korkeakoulu. During the war its library was bombed and totally destroyed.

On my recent trip to Finland for the American Friends Service Committee, I discussed the situation with Dr. Martti Levon, Director of the Institute. He said he would welcome gifts of Scientific and Technical Books and Periodicals from America to take the place of those destroyed. In the remarkable efforts for recovery that the Finns are making, the lack of technical library facilities is a very serious handicap. It would be a practical act of friendship to a nation that holds America in high regard if Americans should contribute good technical books and periodicals to this library.

Any such gifts should be marked for the Institute of Technology, Helsinki, and sent to the Legation of Finland, 2144 Wyoming Ave., N. E. Washington, D. C. Dr. K. T. Jutila, the Finnish Minister, will arrange for their being shipped to Finland.

ARTHUR E. MORGAN

P. S. If you receive for review technical books that you do not wish to keep permanently, they would be appreciated as additions to this library.

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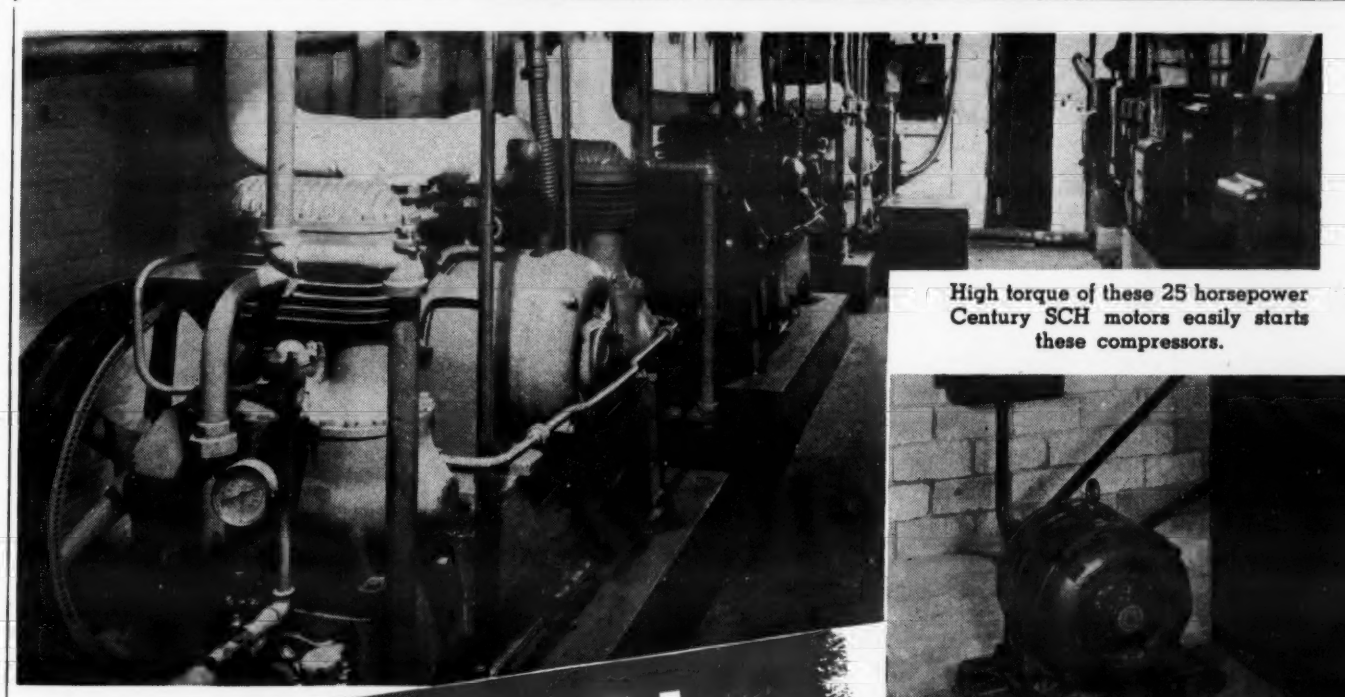

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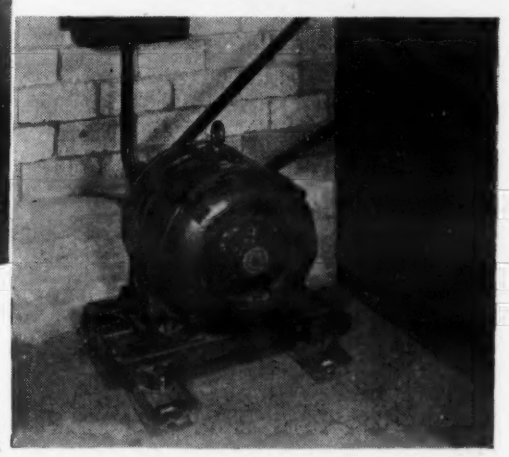
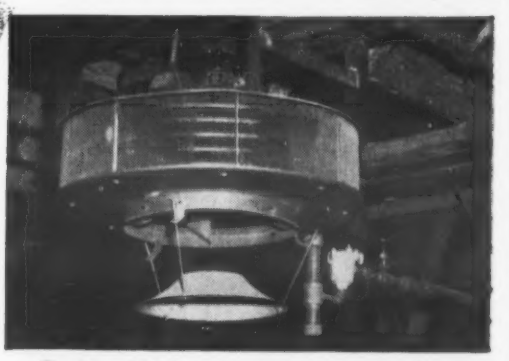
High torque of these 25 horsepower Century SCH motors easily starts these compressors.



Century 30 horsepower SC motor provides quiet operation, smooth acceleration on this air conditioning blower.



Century 1½ horsepower motor provides quiet power for this unit heater.

Whatever your electric motor requirements, there is a Century motor correctly engineered and properly protected to assure economical power.

For instance, Century Type SCH motors provide the high torque necessary to start heavy loads such as large refrigeration compressors. Because Century Type SC motors for blowers, fans and unit heaters start quietly and accelerate smoothly, they contribute greatly to the comfort of air heating and cooling installations.

When your applications require protection, remember that Century motors are built with splashproof, totally enclosed fan cooled and explosion proof as well as open rated drip proof frames.

Century builds a complete line of fractional and integral horsepower electric motors in the popular sizes to meet the requirements of industrial production, commercial and appliance needs.

Specify Century for all your electric power requirements.

Century C MOTORS

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Offices and Stock Points in Principal Cities

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Lythgoe, Mollen Start Richmond Supply Firm

RICHMOND, Va.—Formation of the Capitol Butcher & Restaurant Supply Co., Inc. offering commercial refrigeration equipment and service to those trades, has been announced by D. E. Lythgoe, president and treasurer, and Aleck Mollen, secretary.

Mr. Lythgoe stated that the new firm has a rather complete line of butcher and restaurant supplies and operates a shop for the manufacture of special orders.

He added that the service department is on call 24 hours a day. The firm also offers a personalized service on store layout and remodeling plans.

Mr. Lythgoe has worked with the restaurant trade here for 27 years. Mr. Mollen has served the butcher and restaurant trade for the past six.

Grocer Offers WAA $35,000 For Cold Storage Plant

YOUNGSTOWN, Ohio—Sniderman Bros., Inc., wholesale grocer here, has made an offer of $35,000 for the cold storage plant at Camp Reynolds, Pa., with a recommendation for approval by the regional office of War Assets Administration, it was announced in Cleveland.

The recommendation will be forwarded to WAA's offices at Chicago and Washington for approval.

According to Morris Sniderman of the Youngstown firm, if his company gets the plant it will operate at its present site, storing meats and produce.

U.S. Okays Construction Of Pasadena Laboratory To Study Citrus Fruits

WASHINGTON, D. C.—Construction of a citrus fruit laboratory and installation of necessary equipment at Pasadena, Calif., has been authorized under the Research and Marketing Act of 1946, the U. S. Department of Agriculture announces.

Research at the new laboratory will be closely coordinated with related studies at the larger Western Regional Research Laboratory at Albany, Calif. Upon completion of the new building, which is expected to take about one year, some specific lines of work that are being contemplated are:

Analysis of the volatile elements of citrus juice in an effort to determine what causes the flavor to change after processing; satisfactory methods of processing citrus juice by freezing, and investigation of ways to retain color and flavor in single-strength canned orange and grapefruit juices.

Firm To Make, Distribute, and Deal In Freezing Equipment

BERKELEY, Calif.—Freezer Foods, Inc. has been formed in Berkeley, Calif., with a capital of $25,000, to manufacture, sell, distribute, and deal in freezing equipment. Directors are: John M. Johnson and Marian B. Johnston of 27 Glen Alpine Rd., Piedmont, Calif.; and Philip B. Stapp, of 1855 Jones St., San Francisco, Calif.

New Chart Helps Select Proper Sized Refrigerant Lines

Provides Graphic Method For Figuring Pressure Drop

DETROIT—A graphic method of determining pressure drops in refrigerant lines, and thus the correct size of line to be used, has been developed by Kerotest Mfg. Co. of Pittsburgh, who claims that this chart greatly simplifies the problem.

First presentation of this chart to the trade was made by H. E. "Ed" Ferrill, chief engineer of Kerotest, before the Detroit Section, American Society of Refrigerating Engineers, to open the group's fall season.

It is particularly adapted for sizing of suction lines, and requires only the evaporator refrigerant temperature, the B.t.u. capacity estimated for the job, and the effective length of the line to arrive at the pressure drop for that length of tubing, according to Mr. Ferrill.

Formulas have been in existence for some time which can be employed in calculating pressure drop in piping, but these are rather complex. And even though graphic representations of these formulas have been available, they are not satisfactorily adapted to suction line sizing, asserted Mr. Ferrill.

These particular charts, he explained, must be used at certain specific conditions, and conditions constantly change throughout the length of a refrigerant suction line, thus making the charts inaccurate.

Determining the proper size of refrigerant lines is a constant problem in designing, installing, or servicing a refrigeration system, and the big factor is the pressure drop in the lines, pointed out Mr. Ferrill.

Flanked by Howard Jones (left) and Austin Jones (right) both of Kerotest, H. E. "Ed" Ferrill (second from left), chief engineer of Kerotest, gives Dan Mull, Detroit ASRE chairman, some advance details on his line-sizing chart.

"Pressure drop is a form of friction, like bearing friction in a motor, or like the friction between cylinder and piston in compressor, and it is usually defined as the difference in pressure existing between two ends of a pipe or length of tubing when a fluid is flowing the tube."

The effect of pressure drop in a refrigeration system is more important in the suction line than the liquid line, he said.

"In most installations it is customary to allow 5, 10, or 15 lbs. pressure drop in the liquid line. This doesn't matter much, because we usually try to keep the head pressure high to conserve water, anyway.

"Of course, we must be sure that the expansion valve receives 100% liquid refrigerant all the time. The expansion valve is the heart of the system. If it doesn't receive all liquid refrigerant, it will hiss and not function properly. This can happen on a very long run—150 ft. or more—or if there is a high vertical lift.

"A vertical run adds the weight of refrigerant to the restriction of the line itself to account for additional pressure," said Mr. Ferrill.

"Pressure drop in the suction line, however, is exceedingly important. The suction line is really the business end of the system. The pressure in the suction line at the end of the coil controls the coil temperature. And at the compressor inlet, the pressure of the suction gas largely determines the capacity of the compressor.

"Generally, the higher the suction pressure the higher the B.t.u. capacity of the compressor. The coil, of course, has its greatest capacity at the lowest suction pressure. Thus, the more suction line pressure drop, the lower the temperature at which the coil and the compressor balance.

"In general," continued Mr. Ferrill, "the pressure drop of the suction line should be kept at a minimum."

In order to provide proper return of oil, velocity of the suction line should be at least 1,200 f.p.m., and in small tubing this amounts to about 2 lbs. pressure drop per 100 ft. of run, he said, adding that this has become a rule of thumb for the industry.

The chart developed by Mr. Ferrill covers a wide range of pressure drops, but the recommended tubing size as indicated on the chart provides for pressure drops between 1½ and 3 lbs. per sq. in. per 100 ft.

Divided into two sections, the chart first starts out on the top left with the evaporator refrigerant temperature, a known factor.

From this point one drops straight down to another scale indicating the corresponding suction inlet temperature. At this point one should compensate for the known or estimated pressure drop caused by the heat exchanger.

Next, one drops down to the slanting line corresponding to the B.t.u. per hour output of the system. (The chart covers B.t.u. capacities from 5,000 to 1,000,000 an hour.) From here, one moves straight over to the right-hand side of the chart to intersect diagonal lines representing tubing sizes. The point of intersection selected should fall within the recommended pressure drop as shown by a black bar at the top of the chart.

A line then drawn from the indicated pressure drop at the top of the scale through points established for various effective lengths will show the total pressure drop throughout the effective length on a scale at the bottom.

The tubing sizes shown range from ½ in. to 4⅛ in. dia.

To allow for the changes in viscosity, etc. of refrigerant vapor at high pressure drops, lines curve upward at the end of the tubing size indicators.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933

Of Air Conditioning and Refrigeration News published weekly at Detroit, Michigan for October 1, 1947.

State of Michigan }
County of Wayne } ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Edward L. Henderson, who, having been duly sworn according to law, deposes and says that he is the Business Manager of the Air Conditioning and Refrigeration News and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:
Publisher, George F. Taubeneck, Grosse Pointe, Mich.
Editor, George F. Taubeneck, Grosse Pointe, Mich.
Managing Editor, Phil B. Redeker, Detroit, Mich.
Business Managers, Edward L. Henderson, Detroit, Mich.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)
Business News Publishing Co., 450 W. Fort St., Detroit, Mich.
Margaret B. Cockrell, Detroit, Mich.
Helen C. Henderson, Detroit, Mich.
George F. Taubeneck, Grosse Pointe, Mich.
Phil B. Redeker, Detroit, Mich.
Robert P. Nixon, Detroit, Mich.
Walter J. Schuler, Detroit, Mich.
C. Dale Mericle, Detroit, Mich.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.)
None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mail or otherwise, to paid subscribers during the twelve months preceding the date shown is 18,333. (This information is required from daily; tri-weekly; semi-weekly; and weekly publications only.)

Edward L. Henderson
(Signature of business manager.)

Sworn to and subscribed before me this 10th day of October, 1947.

[SEAL] Helen C. Henderson
(My commission expires Dec. 26, 1947.)

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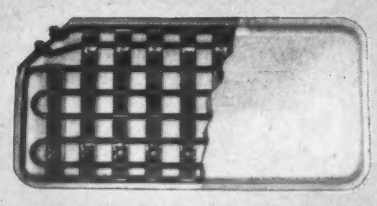
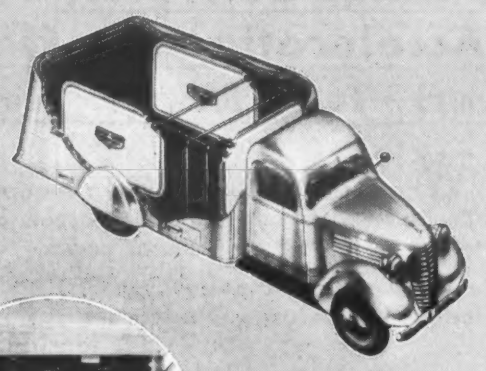
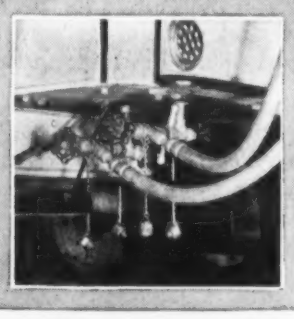


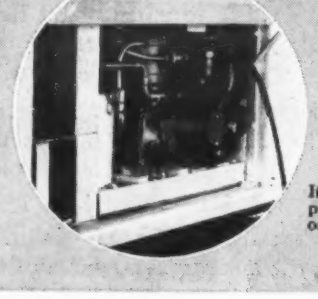
Cut-away view of KOLD-HOLD plate, showing seamless, no-leak steel coil.



Cut-away view of truck, showing typical installation. Note large payload space.



Make - and - break valve, which connects to your ammonia lines for overnight charging.



If necessary, a small compressor can be mounted on the truck.

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New Reach-In Frozen Food Locker Cabinet Makes Bow In Small Rural Kansas Grocery

FAIRMOUNT, Kan.—First installation of a new reach-in type frozen food locker cabinet has gone into a small grocery store here serving the surrounding rich farming area.

The new locker cabinets are a development of the George-Ann Co., presently located in Seattle, Wash., and were installed by the manufacturer in conjunction with Betz Engineering Co., Baker distributor in Kansas City, Mo.

Mr. and Mrs. Henry B. Metzger operate the grocery store, the only business place in this cross-roads community which numbers half a dozen homes.

The George-Ann Co. is headed by three partners, Mr. and Mrs. George R. Overton and E. Lee Flaxa. Mr. Flaxa has been a civil engineer for 17 years while Mr. Overton is a veteran in the refrigeration field with 27 years of engineering and maintenance experience.

At the Fairmount grocery store, the locker installation provides a total of 60 lockers with 480 cu. ft. of storage space. All the lockers, incidentally, were rented by the time installation was completed a short while ago with the exception of six which Mr. Metzger is reserving for overage.

One of the chief features of the George-Ann locker cabinets is their sectional construction. The Fairmount job consists of five sections each measuring 8 ft. high 6 ft. 3 in. wide, and 4 ft. long. Four of these sections house lockers while the fifth section on the end contains a Marlo blower coil which refrigerates the locker sections.

Condensing unit which supplies the coil for the locker cabinets is remotely installed in the rear of the grocery store.

Each locker section is fitted with two 6 ft. x 2½ ft. reach-in doors, one on each side, and there are individual plywood doors for each locker. Internal arrangement permits having 12 10-cu.ft. lockers (six on each side) or 16 7½-cu. ft. lockers (eight on each side) in each section.

Lockers, however, can be omitted from such cabinets as desired to provide for freezer space or bulk storage of frozen foods.

In this particular installation special provision for freezing space has been made in the end section housing the blower coil.

Cooled air from the coil is forced into a plenum chamber above the coil in the end section measuring 60 in. wide by 8 in. deep. From the plenum air is forced through a duct built into the top of each section which is 60 in. wide by 3⅝ in. high. This size duct, incidentally will take care of a 60-ft. run, or 15 locker sections.

Air is delivered from the duct to the cabinets through baffled outlets in the top of the cabinet. The baffling arrangement directs air to the sides and back where it falls through air passages provided by corrugated aluminum sheets. A space 3⅝ in. by 60 in. is incorporated in the bottom of each section, creating a return air duct leading to the coil section.

The cabinet sections are insulated with 6 in. of Fiberglas all the way around, and the vapor barrier consists of double asphaltized paper with 3-ft. laps plus foil paper on the outside for its reflective properties.

In the machinery room there is a 2-hp. Par (Lynch) air-cooled "Freon-12" condensing unit which is connected to the blower coil for the locker cabinets. There is also a ¾-hp. air-cooled Baker "Freon" unit which supplies a Marlo cooler in a chill room. The latter is entirely separate from the locker installation.

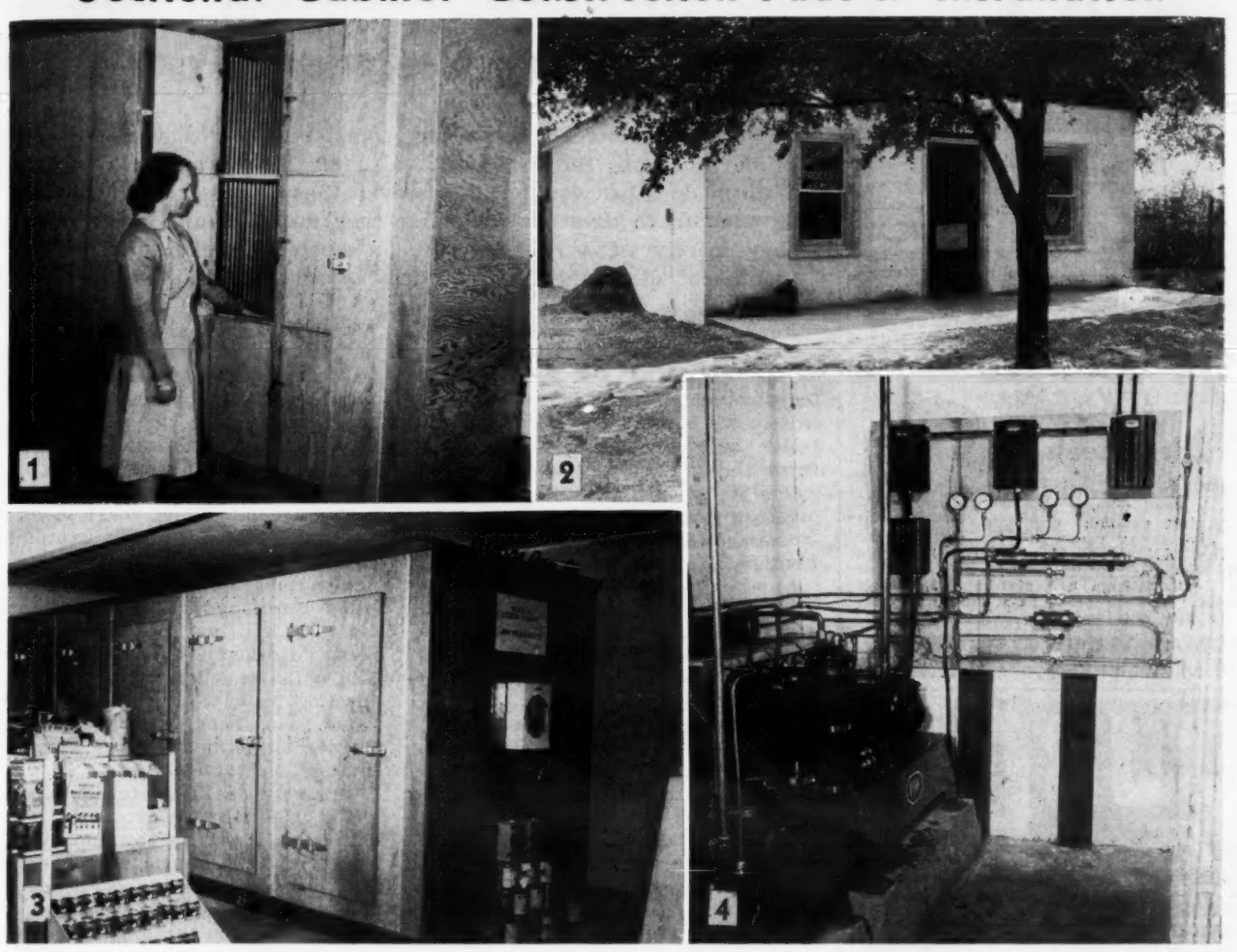
One of the chief features claimed for this type of locker installation by Mr. Overton of the George-Ann Co. is that patrons do not have to enter a 0° F. room to get at their lockers.

Cost of installation, he further claims, will run no more than conventional locker systems, and locker rentals, he asserts, should pay for the cabinets in two years. The Metzger store, incidentally, is charging $18 a year for a 7½-cu. ft. locker and $24 for the 10-cu. ft. size. The larger size rented faster, adds Mr. Metzger.

Finished in plywood, the sections are brought in dismantled and will pass through the usual-size doors, thus facilitating the construction, according to Mr. Overton.

The George-Ann Co. expects to aim chiefly at established food centers for the installation of this new development, with particular emphasis on the retail distribution of commercially packed frozen foods.

Sectional Cabinet Construction Aids In Installation



Developed by the George-Ann Co., a new sectional-type frozen food cabinet installation has gone into the Fairmount, Kan., grocery operated by Mr. and Mrs. Henry B. Metzger. (1) Mrs. Metzger shows the inner doors for the individual lockers. Note corrugated side walls for air distribution. (2) There are 60 lockers, all rented, in this small cross-roads grocery store. (3) Five sectional cabinets comprise this installation, four containing 120 cu. ft. of storage space apiece, the fifth (at the far end) housing the blower unit. (4) Installed at the rear of the store, a 2-hp. Par machine cools the locker cabinets while a ¾-hp. Baker unit, lower left, supplies a chill room.

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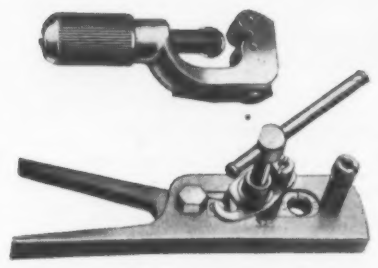

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Quick Test of Expansion Valves, Controls Improves Service Operations (Part 2)

Editor's Note: In answering complaints servicemen are often prone to accuse the expansion valve or the thermostatic control. With modern test equipment, however, these can be quickly checked on the job to determine whether they are at fault, and whether they merely need readjustment or must be replaced. The first instalment of this two-part article appeared in last week's issue.

Power element of an expansion valve may also be tested for a short or lost charge. After reducing the temperature of the thermostatic control tester to below 32°, remove the feeler bulb of the expansion valve from the thermo-control tester and warm it up with the hands. If the pressure gauge does not register an increase in pressure, the power element has lost its charge.

Another indication that the power element has lost its charge is shown if the valve will not pass pressure to the pressure gauge when the feeler bulb is left out of the thermo-control tester receptacle.

To adjust thermostatic expansion valves for any given refrigerant, follow the procedure as given for determining the setting of the valve, and then simply change the setting of the valve to conform to that required for the refrigerant to be used. This data is given on the superheat chart. As stated previously, 10° superheat settings for "Freon-12," methyl, and sulphur are shown on the dial of the pressure gauge.

Automatic expansion valves, as well as thermostatic expansion valves, can be tested with the Airserco valve analyzer, according to Mr. Williams. In testing automatic valves, no refrigeration is required. With the orifice valve of the pressure gauge open, the constant pressure setting of the automatic expansion valve is indicated on the outlet gauge.

The accompanying chart gives approximate settings for automatic expansion valves as used in various applications and refrigerants.

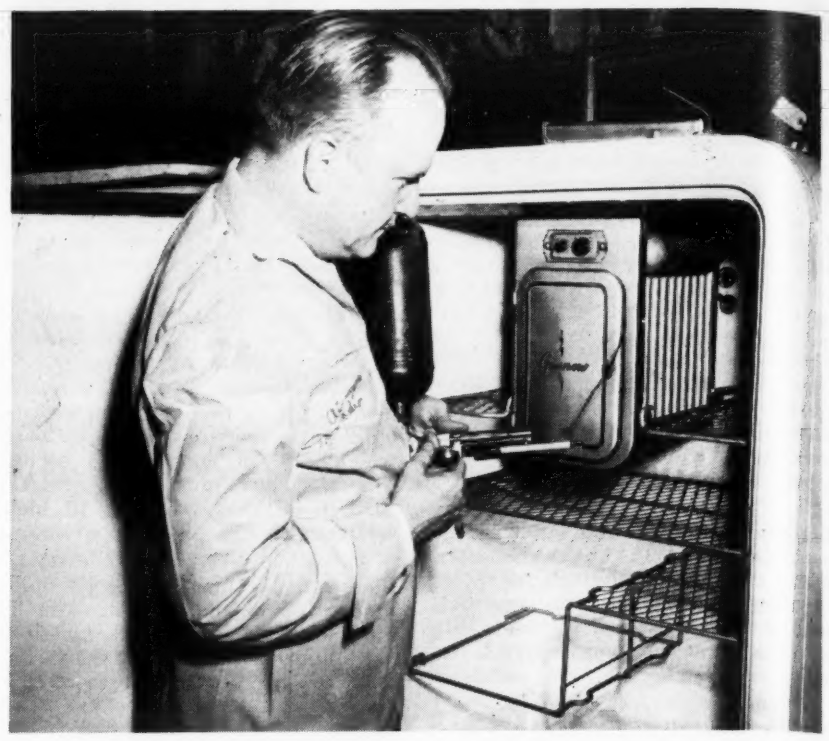
By referring to this chart, automatic valves may be present before being installed. This function, says Mr. Williams, eliminates a return inspection call to the job after the valve has been installed because further adjustments won't be necessary in most instances.

Tests for leaky seats can also be made on automatic expansion valves with this analyzer by closing the orifice valve. If the pressure does not increase, the valve seats are holding.

"The Airserco thermostatic control tester, an important component of the valve analyzer, was primarily developed as a pocket test instrument to determine the performance of a

(Concluded on next page)

Thermostatic Control Undergoes Test



E. C. Williams, head of Airserco Mfg. Co., shows how to test the setting of a thermostatic control without removing the control from the refrigerator.

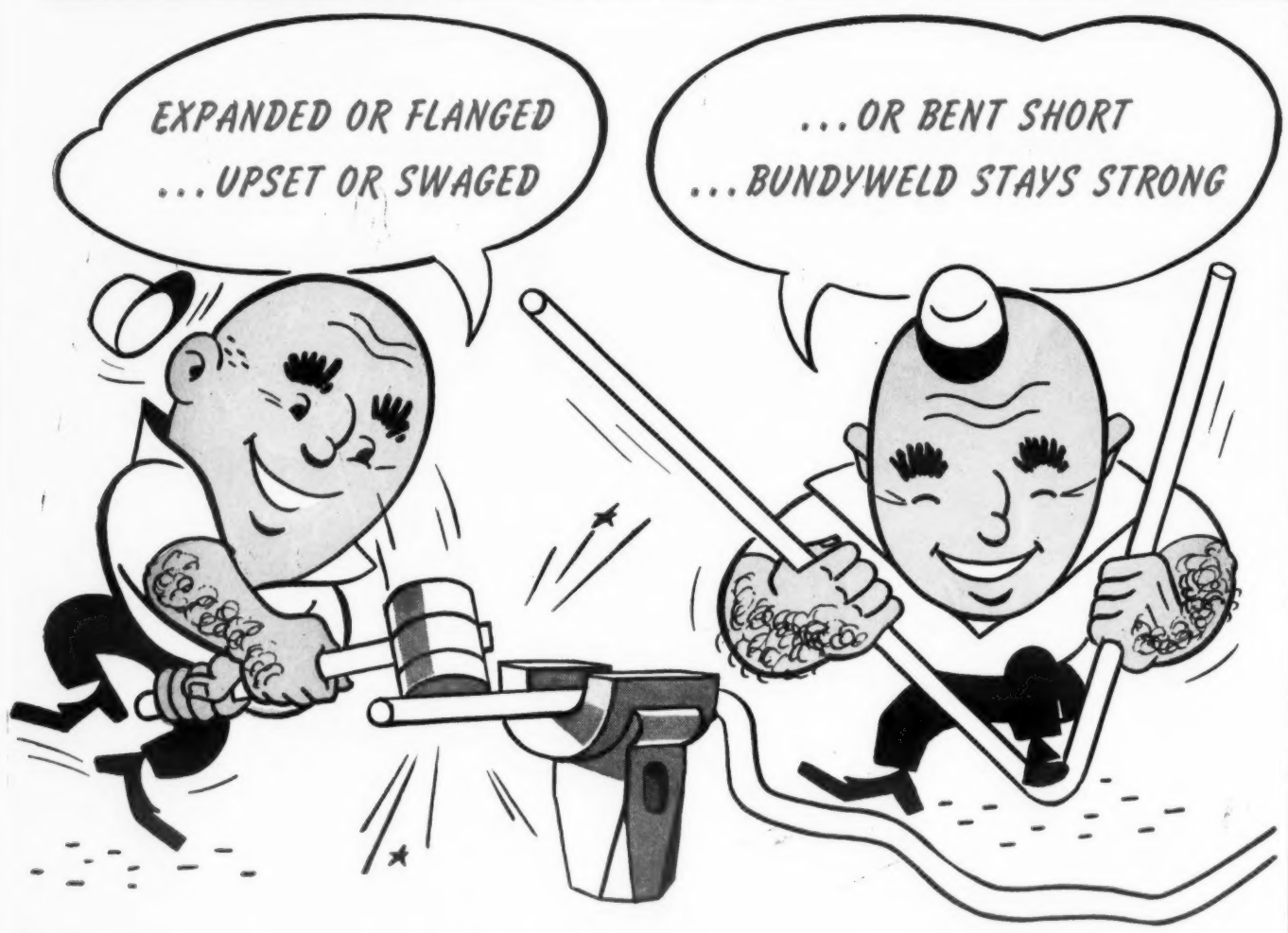
Superheat Chart
Pressures as Indicated on Airserco Superheat Gauge

Superheat Setting	"Freon-12"	Methyl Chloride	Sulphur Dioxide
0°	30.0	22.0	8.0
2°	28.5	20.0	7.0
4°	27.0	19.0	6.0
6°	25.5	18.0	5.0
8°	24.0	16.5	4.0
10°	22.5	15.0	3.0
12°	21.0	14.0	2.5
15°	19.0	12.0	1.0
17°	17.5	11.0	....
20°	16.0	9.5	....

Approximate Automatic Valve Settings

Application	Sulphur Dioxide*	Methyl Chloride*	"Freon-12"
Apartment house refrigerators	8	5	10
Ice cube maker—flooded coil	14	0	4
Ice cube maker—dry type coil	14	0	4
Ice cream cabinet—brine tank	14	0	4
Sweet water bath—soda fountain	2	14	21
Show case—frost cycle	8	5	10
Show case—defrost cycle	0	12	18
Beer, water, milk cooler	1	13	19
Walk-in cooler—defrost cycle	6	6	12
Ice cream trucks, hardening rooms	16	4	2
Vegetable display—defrost cycle	8	5	11
Eutectic brine tank ice cream truck	18	6	1
Reach-in cooler—defrost cycle	0	12	18
Beer coolers—blower dry type	2	9	15
Beer coolers—bare pipe dry type—frost cycle	7	5	12
Instantaneous beer coolers	7	6	12
Retail florist box—blower coil	6	19	28

*Bold face figures indicate inches of vacuum.



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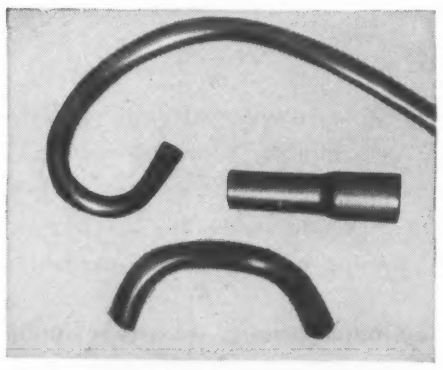

Pictured above are samples of Bundyweld Nickel Tubing. It may be expanded, flanged, upset and swaged—also sheared, notched or flattened and otherwise subjected to ordinary machining processes.

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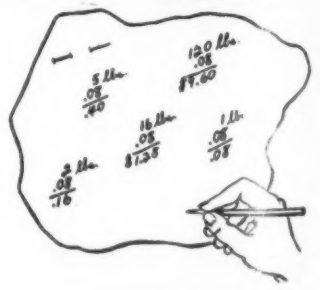
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Make and Model	Cut-Out	Cut-In	Defrost
Apartment house refrigerators	0	25	....
Apex 504, 454	16	30	42.5
Beer coolers—blower dry type	10	35	....
Beer, water, milk coolers	20	30	....
Beverage coolers	34	38	....
Coldspot 1930, '31, '32, '33	16	28	38
Copeland Dial Pointer	16	30	41
Copeland 1933, L4, L5, L6, W7	15	26	42
Copeland Special	16	30	44
Copeland tank	10	24	38
Copeland coil	21	32	44
Crosley	14	28	42
Dayton	14	28	42
Deepfreeze	–10	5	....
Eutectic brine tank I. C. T.	–20	–10	....
Frigidaire 1936	17	29	42
General Electric 1934, GE, CD	12	25	38
General Electric 1936, '37	11	22	38
Gibson	14	28	42
Graybar	16	28	42
Grunow 1933 C 50, 60, 75	18	28	42
Grunow 1934 D 46, 50D 54D, 65D, 65SD, 80D, 80SD	20	30	42
Grunow 1935 H J K 50S, 60S, 51D, 61D, 67D, 82D, 56SD, 67SD, 82SD 82HSD	20	30	42
Grunow 1936 M R	20	30	42
Grunow 1937 W	18	30	42
General replacement	15	28	42
Hotpoint 1934 CD	12	25	38
Hotpoint 1936, '37	11	22	38
Ice cream cabinet	–10	5	....
Ice cream trucks, hardening rooms	0	10	....
Ice cube maker	–10	15	....
Ilg-Kold	16	28	42
Instantaneous beer cooler	5	30	....
Kelvinator	13	28	40
Majestic 100, 101, 103	10	28	42
Majestic 205, 207, 209	14	28	42
Mohawk	19	43	50
Norge 1929, '30, '31	12	24	36.5
Norge 51, 61, 71	12	24	36
Norge 42, 52, 62, 72, 102	27	36	44
Norge 1933 (all models)	12	27	39.5
Norge 1937 RH976	15.5	29.5	42
Norge RH134	11	24	36
Norge 1938	29	36	42
Norge 1938 Low Temperature	23	31	35
Norge 1939 (all models)	14	27	42
Norge 1940 (all models)	14	27	38
Norge 5.1 amp. overload coil	12	24	36.5
Norge 6.8 amp. overload coil	27	36	44
Potter	14	28	42
Reach-in cooler—defrost cycle	0	35	....
Retail florist blower coil	30	45	....
Servel electric hermetic	14	28	42
Showcase—frost cycle	0	35	....
Showcase—defrost cycle	15	35	....
Sparton 1933 type D	14	28	36
Stewart-Warner 077A	20	31	42
Stewart-Warner 055A, 065A	17	30	42
Stewart-Warner 040E, 045C	10	30	42
Stewart-Warner standard deluxe	3	26	44
Stewart-Warner 1935 deluxe	14	26	44
Sunbeam Electric 1930, '31, '32, '33	16	28	38
Sweet water bath (soda fountain)	20	30	....
Trucold	17	29	42
Truscon	14	28	42
U. S. Radio & Tele.	17	28	42
U. S. Standard, normal setting	14	28	42
Vegetable display, defrost cycle	5	35	....
Walk-in cooler, defrost cycle	5	35	....
Water coolers	40	45	....
Wayne L410, L610	16	30	42.5
Williams Ice-O-Matic	14	28	42
Zenith	14	28	42
Zerozone 74, 85	15	28	42
Zerozone 52	14	27	42
Zerozone 63	11	24	35
Zerozone part No. Z4194	11	24	35

Guesswork Avoided In Control Testing

(Concluded from preceding page)

thermostatic control without removing the control from the refrigerator cabinet," explains Mr. Williams.

"The instrument eliminates guesswork and cuts down on return calls."

It receives all standard bulbs and is provided with an adaptor to receive non-standard bulbs.

By means of a quick connector, the tester attaches to any small refrigerant service cylinder. When in an inverted position, the cylinder supplies the tester with a liquid charge of refrigerant (methyl chloride or "Freon-12").

"The refrigerant is quickly converted into temperature and the thermostatic control may be heard cutting in and out according to the readings of the thermometer on the thermo-tester.

"Many service organizations have reported that this instrument is invaluable in solving the problem of customer goodwill, especially when the service customer reports:

" 'There's nothing wrong with the refrigerator except the thermostatic control is bad.'

"There have been innumerable instances," avers Mr. Williams, "when the thermo-tester has shown the customer that the thermostatic control is properly operating, but the refrigeration unit is in considerable difficulty."

When the thermo-tester shows the control to be defective, the latter should be immediately replaced, suggests Mr. Williams. The same should apply to defective expansion valves.

"This replacement restores refrigeration promptly, and the quick service creates customer goodwill. As we all know, customer goodwill is always followed by increased sales."

All parts of the Airserco thermotester are standard items and may be replaced without returning the instrument for servicing or recalibration, according to Mr. Williams. The orifice tube is cleanable and replaceable, as are the gaskets and the thermometer.

Jack Tupper Elected Head Of REWA's Region No. 11

SEATTLE — Refrigeration Equipment Wholesaler's Association Region No. 11 recently held its initial meeting and election of officers.

Jack Tupper, Peerless Pacific Co., became chairman, Berl Edwards, Refrigerative Supply, Inc., secretary, and W. W. Sonnenberg, Refrigerating & Power Specialties, treasurer.

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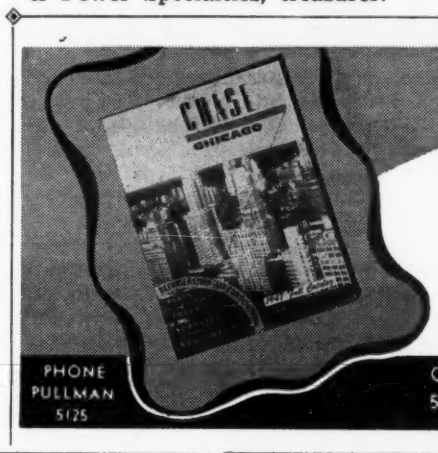

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Ingenuity In Both Sales & Applications Mark Locker Installations of Contractor

Editor's Note: This is the concluding instalment in a series of five articles which have presented a detailed explanation of how one successful firm—Refrigeration Contractors, Inc. of Youngstown, Ohio—and its head, Ed Wright, sell and install locker plants.

By C. Dale Mericle

Another recent interesting locker plant installed by Refrigeration Contractors, Inc., is located on the outskirts of the small town of Hartford, Ohio—in the basement of a gas station.

This one is owned and operated by Frederick Merriman, a graduate of Ohio State university, majoring in chemistry and entomology. For a number of years before the war he was a traveling representative for large fertilizer firms, advising farmers and county agents on proper methods of testing and treating soil.

Meanwhile his parents had operated the gas station across the street from their little home for 22 years, never closing a single day.

After service in the war as an infantry captain, Merriman wanted to make things easier for his parents by locating in his home town with a business that would provide a good income for all.

He decided to survey the people in the town to find out what sort of business they thought was necessary, and this way he learned that the community wanted three things: a locker plant, a dairy and ice cream store, and a grease rack at the gas station.

Actually, the town of Hartford already had access to three locker plants, but they were all located about 10 miles away, too inconvenient, so most of the townspeople said.

Merriman then set about to provide the things which the community wanted. He moved and raised the gas station, putting in a basement for the locker plant. Along side the gas station proper, which now houses a small food store, he erected the grease rack.

The locker plant which Refrigeration Contractors, Inc. installed in the new basement is very small, for the basement measures only 43 ft. long by about 18 ft. wide and 14 ft. high. The compact arrangement, however, permits space for 196 lockers, a small freeze room, a chill and age room, and a small processing area.

A local resident performs the cutting, wrapping, and processing operations for the plant, supplying his own tools, and receiving all the income from this work. Merriman contents himself with the income from locker rentals, alone. The latter, however, is sufficient to return Merriman 20% annually on his investment after paying the power bill, insurance, and depreciation, according to Wright.

Above the locker room, on the first floor of the gas station, that is, there is a small grocery store. Locker patrons have to go through the store to the back of the building to get down to the locker room. This arrangement of course, is designed to bring patrons through the grocery section where they can be influenced to make food purchases.

Shaft Aids Delivery

To facilitate the bringing in of meat for cutting and freezing, a shaft has been sunk in the back of the building which opens up into the processing room of the locker plant. Patrons can conveniently drive around in back, hook the carcass onto a hoist and drop it down to the basement level.

Merriman says he's quite pleased with the way things have worked out, and he has great confidence in the future. The new venture has been in operation only a short time, but already he has noted a definite increase in the grocery business.

"Our locker operation fits in very well with our business," declares Merriman, adding that it would "probably fit in well with any operation which is serving the public."

Installing a locker plant in a gas station is not a new idea, readily admits Ed Wright, who points out that some of the very earliest installations out in Iowa were in conjunction with gas stations.

The Merriman operation in Hartford, however, does represent the diversification of businesses that can be interested in locker plants, and it further indicates the pronounced trend to install locker plants as an adjunct to another business, says Wright.

Just recently Refrigeration Contractors, Inc., added a self-service grocery operation to its own locker plant in Youngstown, which adjoins the firm's headquarters.

Covering 1,500 sq. ft. of space, this section has been leased to John Kizar, who is thoroughly experienced in market operation. Patrons of the locker plant now have to enter through the market, which helps create sales there. In addition, considerable neighborhood trade has been developed, and this should lead to a number of new locker patrons.

The first month of operation grossed about $5,000 for the market, Kizar reports.

Over in New Wilmington, Pa., there is still another locker plant designed by Refrigeration Contractors, Inc., which has a number of interesting features, both from the standpoint of merchandising technique and some more or less unusual mechanical features.

This is a fairly large plant, numbering some 640 lockers and measuring 100 ft. long by 44 ft. wide. And in addition to a locker plant complete with all processing facilities, it features a self-service grocery in the front section of the building.

Art and Weldon Garrett, brothers, are operators of the plant, and as a matter of fact they performed the greater part of the construction work. Previously Art had been in the lumber business while Weldon is an all-around mechanic.

The building, incidentally, represents the second complete new locker plant which Refrigeration Contractors, Inc., has handled since the end of the war.

Included in the front self-service grocery section are several display islands, one check-out, frozen food display cases, and a conventional meat case. Behind the latter is the meat processing department, which operates in full view of the customers. This is on the left side of the forward section.

Directly behind the processing area are the meat ageing and chill rooms, along with a cooler for smoked meats.

Back of the grocery section on the left side of the store are the freezer and locker rooms, while in the rear of the building are located two smoke houses, a cure room, the poultry processing department, lard rendering equipment, and garage area.

Machines In Basement

Refrigeration equipment is housed in the basement beneath the forward section of the building, which also serves as storage space for dry groceries.

Chill and age rooms are refrigerated by a 3-hp. water-cooled Servel machine. The locker and freeze rooms are cooled by two Baker 5-hp. water-cooled units hooked up in tandem with a Kramer-Trenton Thermobank system.

Much of the water employed for condensing comes from a spring, but in period of heavy load this is not sufficient, thus city water is piped in for standby purposes. To keep

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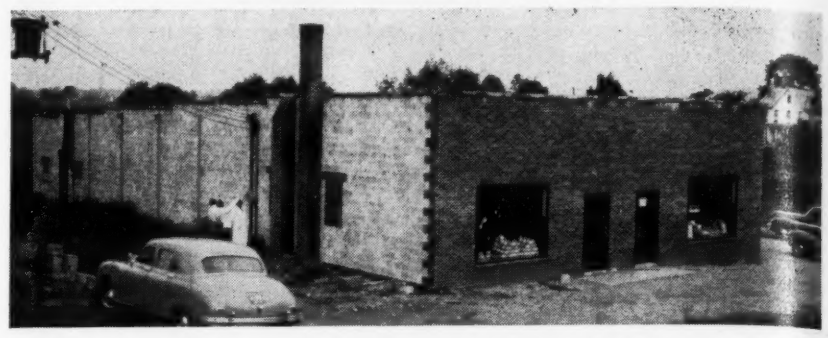
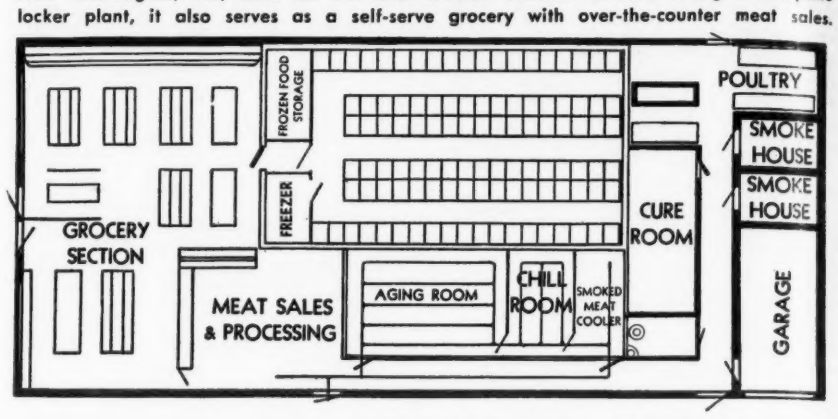
New Plant Features Grocery Section



Among the newest locker plants handled by Refrigeration Contractors, Inc. is one in New Wilmington, Pa., built for Art and Weldon Garrett. Besides being a complete locker plant, it also serves as a self-serve grocery with over-the-counter meat sales.



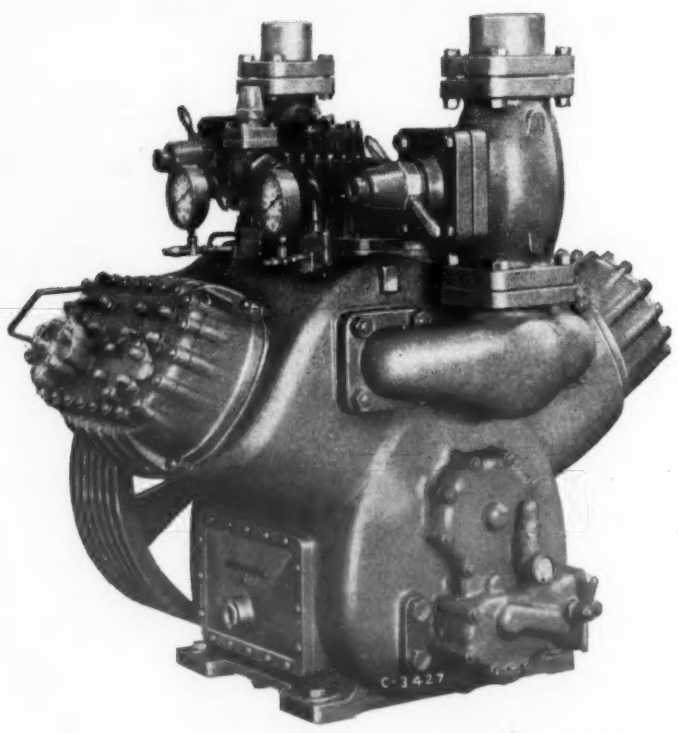
Here is the layout of the New Wilmington, Pa., locker plant.

WORTHINGTON

Air Conditioning and Refrigeration Report

Worthington Pump and Machinery Corporation, Harrison, New Jersey

WORTHINGTON FREON-12 COMPRESSORS COMBINE COST-SAVING INSTALLATION AND OPERATION



Pleasingly streamlined, the new Worthington Freon-12 Compressors are sturdy but light, compact but easily accessible, unusually quiet and efficient in action. And their low initial price is joined by minimum operating costs over a long service life.

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A7-7

WORTHINGTON — Air Conditioning and Refrigeration

"They're Freezing Down South . . . with Worthington Refrigeration"

In addition to 2,000 lockers the new, ultra-modern Lawson Frozen Food Locker Plant in Columbia, S. C., has a large glass-type freezer room and rooms for processing and storing salt meats and poultry. Other features are a smoke house, offices and display space. In the basement a zero degree F. room is being built for bulk and job lot storage.

Lockers in the Lawson plant are kept at 38F. Temperatures for these and other refrigerated rooms, ranging down to minus 3F. are maintained by Worthington equipment. This includes five 5x5 VSA ammonia remote-type units, one 4HF ammonia booster, together with an evaporative condenser, subcooler and oil separating equipment, etc. — all supplied through the Palmetto Air Conditioning and Refrigeration Co.

Mammy's Shanty, famous restaurant in Atlanta, Ga., is Worthington-equipped with a low-temperature refrigeration system handling: a sharp freezer room; a zero degree F. general storage room; and a 34F. meat storage room. This efficient, economical installation consists of two air-cooled units, Freon-12, of 1½ and 2 hp, respectively. Mr. Allen Stewart, owner, writes: "*We can heartily recommend your equipment.*"

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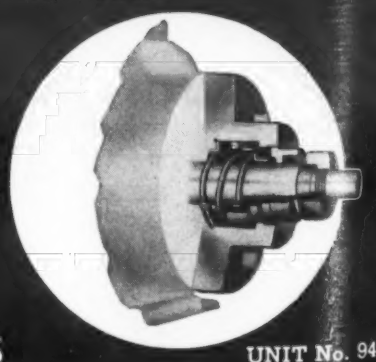

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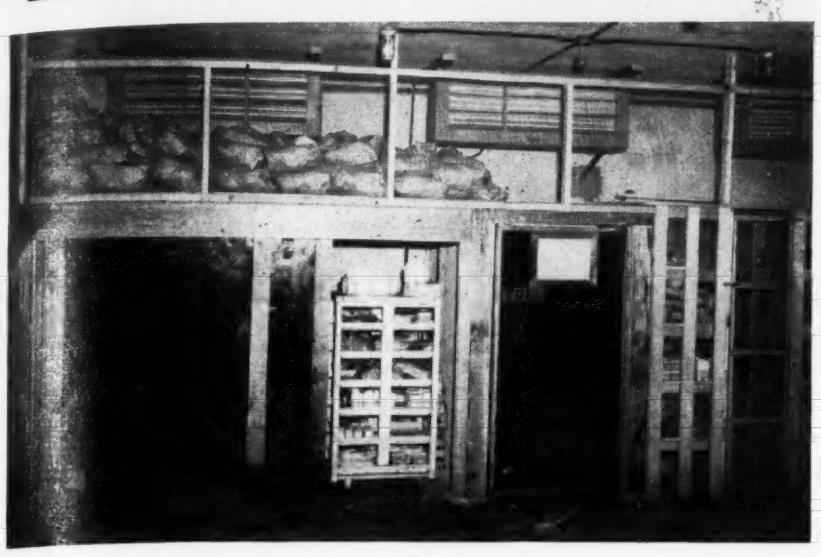
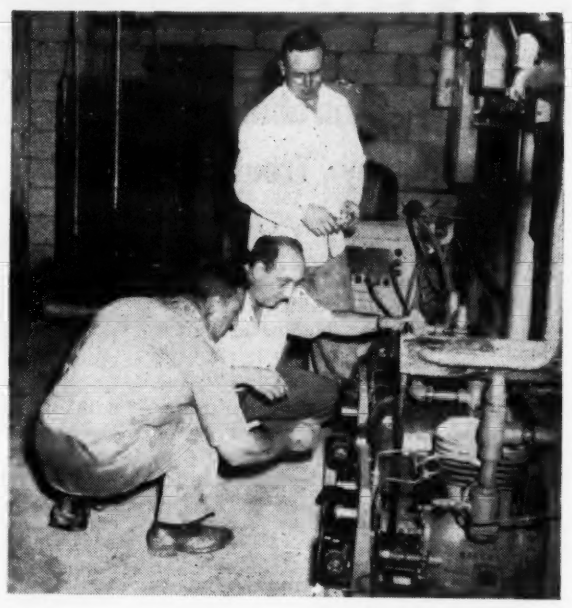
Ease of Maintenance and Service Provided In This Locker Plant Installation



Freezer section of the New Wilmington locker room is shown at left. Note the sliding door which has been pushed aside to show how trucks loaded with foods for freezing are rolled into place. (Right) Weldon Garrett (left) and Ed Wright check a control on a Baker 5-hp. machine as Art Garrett looks on.



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Cooling of Roof Cuts Locker Plant Load

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the use of city water at a minimum, however, an evaporative condenser was installed.

A rather unique use has been made of this evaporative condenser to cut down the load on the plant. When it is in operation, this unit pulls air in from the basement to cool the water, but instead of being discharged to the atmosphere, this air of moderate temperature is piped up from the evaporative condenser up a flue on the outside of the building and then discharged in the space between the false ceiling and the actual roof of the structure.

This set-up, believe Ed Wright and the Garrett brothers, will materially reduce the sun load, which can be considerable on a flat, sloping roof of this type.

Further reduction in the heat load on the roof is being achieved by pumping waste water from the 3-hp. condensing unit up to the top of the building where it is sprayed on the roof. Waste water from the unit is dumped into a cistern below the basement from which a small centrifugal water pump forces it up to the roof. The pump is electrically driven and manually controlled. It is usually turned on when the weather is exceedingly hot.

Another interesting feature of this locker plant installation is the freezer section of the locker room. Cooling is provided by Kramer-Trenton Thermobank coils located at the ceiling along the front wall of the locker room. Beneath the coils is the freezing compartment, fitted with sliding doors which are cut off about 12 in. above the floor.

Air is thus forced from the coils down the length of the locker room and is pulled back along the floor under the doors up into the freezer section and thence through the coils. The coils are set forward from the front walls nearly 2 ft., thus permitting a serviceman to climb up in the freezer section and work behind the coils conveniently, if necessary.

Sliding doors on the freezer section can be easily moved when a truck loaded with foods ready for freezing is to be shoved into position.

Operation of the locker plant in conjunction with the self-service market is working out very satisfactorily, according to Art Garrett.

"Our grocery section is bringing in a lot of business from customers in the town, and locker patrons are providing considerable business in the grocery department," he says. "Also, grocery customers have shown a lot of interest in the locker plant and quite a number of them have rented lockers.

"We opened the grocery section about a month ago and did $800 worth of business the first Saturday. We are now doing around $1,200 to $1,300 a week in this section, and that should increase," he declared.

Dressing of chickens has developed into quite a business for this operator, who has decided to dress chickens on Mondays and Fridays. By confining this operation to just these two days, Art Garrett believes he can do the job more efficiently and still have freshly dressed chickens on hand for those days when the demand is greatest.

In these various locker plant installations, one can note that Refrigeration Contractors, Inc., has employed a variety of makes of equipment, although Ed Wright has found the Thermobank system to give much satisfaction. Using a variety of equipment is a matter of policy with this firm.

Sell Services, Not Lines

"We sell our services as engineers and contractors, not as dealers for a particular line," emphasizes Wright.

"We have found that no matter how big the name of the equipment manufacturer, the customer depends on the contractor to give him a proper job. Often the customers don't even ask the name of the equipment we're planning to install. If, however, a customer specifies a certain make, we will obtain that make.

"Ordinarily we make all our purchases through parts and supplies wholesalers. Sometimes, though, to obtain a particular make of equipment, we have to buy it from the local distributor. We have little if any difficulty on this score, for the distributors know that when we come in with an order that job has already been completely sold," explains Wright.

Refrigeration Contractors, Inc., is not interested in having a franchise that will tie the firm down with quotas and commitments, according to Wright.

Although this firm developed out of an organization that originally specialized in service, Refrigeration Contractors is currently not promoting much outside service work, except for handling its own installations. This is due to the fact that the firm is still in the process of building up its staff of installation and servicemen. Six men are now employed in this department under Chuck Costello, two of them being war veterans under a G.I. training program.

"It's just a lot of hard work training installation and servicemen," declares Costello. "We have the boys in at night frequently for classroom instruction, but most of the training comes from working right with these men on the job."

Finding suitable men for this work has been a problem, he recounts. Altogether, the firm has worked with some 20 men to develop its present staff of six. The others just didn't prove satisfactory for some reason or another.

One veteran, however, Cy Terna, started in the service department as a trainee, but the firm decided that he would be much more valuable as a salesman, so he's been shifted to the branch of the business where he works closely under the supervision of Sales Manager Detke, Wright, and Charlie Campbell.

Another veteran, C. S. Funk, is also training for sales.

Selling is also encouraged among the service and installation men through a graduated scale of commissions for leads and actual sales.

If a servicemen brings in an order all signed and ready to go, he is paid an 8% commission on the list price of the equipment.

If, however, he has done everything except close the deal and it is necessary for one of the executives to go and close it, the serviceman receives a 4% commission.

Leads turned in by the serviceman which are developed into sales by some one else pay off only 1%.

Service work comes first with these men, though, and they don't neglect that job in order to run down sales.

Top quality installation and service work, moreover, is a fundamental precept of Refrigeration Contractors, points out Wright.

"We believe that customers should be satisfied, and that they should be proud of their refrigeration installations," he says. Wright, incidentally, is first vice president of the National Association of Refrigeration Contractors, and has long been active in local contractor activities, the A.S.R.E., R.S.E.S., and the national locker association.

One of his chief objectives has been to improve the standards of installation work. As he puts it, if contractors all subscribe to the principle of putting in a top quality job, "there will be little difference in the final cost to customers, because there's little difference in the cost of good equipment."

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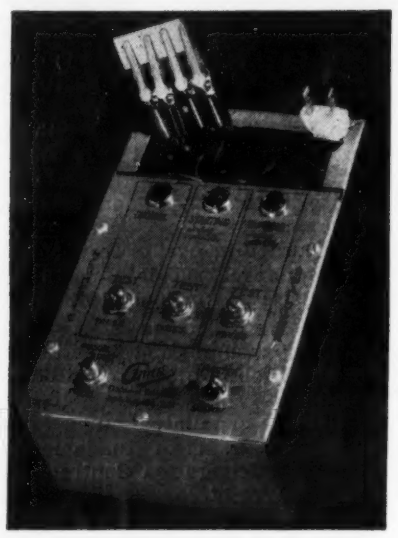
What's New



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'Annie' Permits Rapid Testing of Sealed Units

NORTH HOLLYWOOD, Calif.—"Annie," a hermetic unit analyzer now being manufactured by Mechanical Enterprises here for refrigeration servicemen, is said to indicate "in a matter of seconds" the nature of any defect in an electrical system.

The analyzer is also being promoted as a way to "show the owners of equipment just what is wrong and thus gain their confidence."

Announced purpose of the analyzer is to test continuity of starting and running windings, to test for grounds in such windings, and to start a unit without relay or control. The unit comes with instructions for its use.

Weight of the device is given as 1¾ lbs. and the size as 3 in. by 5 in. by 8 in. It sells for $16.50.

Polystyrene Durability Increased by Treatment

DETROIT — Discovery of a new surface treatment for polystyrene, which will greatly increase the field of use of styrene resins, was announced recently by Nash-Kelvinator Corp.

The treatment is expected to have wide application in the manufacture of durable goods, where the use of plastics is increasing rapidly, and to be particularly valuable in the automotive field, according to R. A. DeVlieg, vice president in charge of manufacturing.

The new treatment makes possible the use of polystyrene in applications previously requiring much more expensive plastics. As a result it permits manufacturers to take economical advantage of the superiority of plastics in many instances, in which their use was either impractical or too expensive, Mr. DeVlieg said.

The new "Logoquant" treatment depends on actual fusion between the polystyrene and resistant materials, it was said, and is not a mere surface coating.

It is fully developed for production line application, either by spraying or dipping, and is being adopted for use by Nash-Kelvinator. It does not require special equipment, nor curing at high temperatures, and can be completed in 15 minutes, using standard equipment, it is claimed.

Logoquant imparts to polystyrene a mar resistance 18% higher than that of untreated polystyrenes, 7% higher than that of a good spar varnish, in the same order of magnitude as much more expensive plastics, it is said. When marred, Logoquant-treated polystyrene can be polished to clearness much more easily than untreated polystyrene, and is considerably less electrostatic. It resists solvents which attack polystyrene; such as gasoline, mineral oils, carbon tetrachloride, and toluene.

An earlier study by Nash-Kelvinator revealed that polystyrene resins would be excellently adapted for many automotive uses. However, major disadvantages ruling out such use were: proneness to scratching; destructive action of common cleaner fluids, gasoline and oil; and electrostatic attraction for dust.

After experiments with polystyrene in automotive use, Nash-Kelvinator employed the Bjorksten Research Laboratories to work out a practical solution to the problem. The Logoquant treatment is the result of this work. Bjorksten patents are assigned to the Nash-Kelvinator Corp., which has licensed the Bee Chemical Co., Chicago, to manufacture the Logoquant materials and to make the treatment available to plastic manufacturers or users.

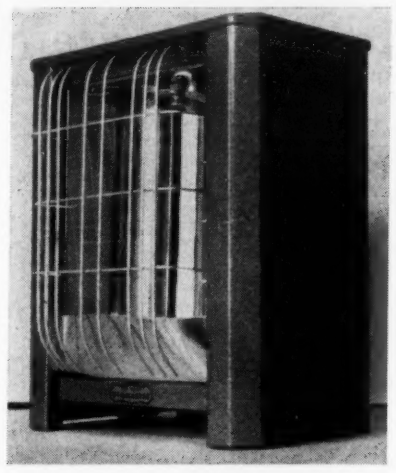
Halstead & Mitchell Adds Water-Cooled Condenser

PITTSBURGH—Addition of a ⅓-hp. unit to its line of water-cooled condensers has been announced by Halstead & Mitchell here.

Designated as Model T6S1-15, this model is of single-stage design using ⅝-in. water tubes. Over-all length is 18¾ in. with six tubes high.

It is not recommended for booster-condenser applications above ¾ hp. because of its single-stage design, the company states.

This new model was introduced, explains B. Halstead, head of the firm, because "there is a tendency on the part of a large number of refrigeration servicemen to convert standard ⅓-hp. air-cooled units to water-cooled operation by replacing the air-cooled condenser with one designed for water."



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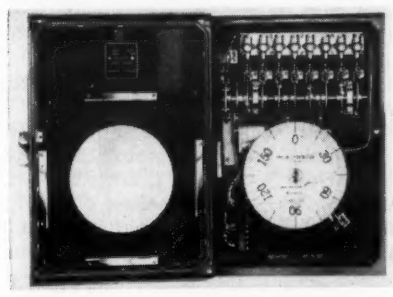
Firan Makes 'Glomaster' Portable Electric Heater

SANTA MONICA, Calif.—The Glomaster V-10 portable electric heater, manufactured by the Firan Co. here, features sintered carbide compound element, which, it is claimed, will not burn out or be affected by splashing water.

Infrared heat radiates from the polished aluminum reflectors, the manufacturer points out, adding that exposed heater surfaces will not burn if touched. All inside wiring is asbestos insulated and a gravity switch automatically shuts the power off if the unit falls forward on the floor.

Glomaster, it is claimed, consumes only 935 watts and operates on 110 v.

The heater is available in a choice of three colors and in hammertone or wrinkle finish. Metal surfaces are plated against corrosion.



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Time Cycle Controller Introduced by Bristol

WATERBURY, Conn.—The Bristol Co. announces the development of a new multiple-cam time cycle controller, known as the model C500 "Impulse-Sequence Cycle Controller," for timing mechanical operations in industrial processes.

This instrument is designed for use where a number of factors, such as the opening and closing of valves, switches, dampers, retorts, and presses, and the starting, stopping, or reversing of motor-driven pumps, and blowers, must be accurately timed according to a fixed program.

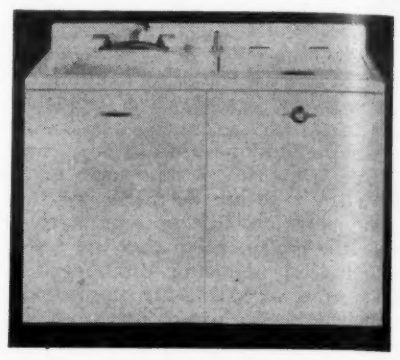
In operation, the model C500 Impulse-Sequence Cycle Controller actuates or engages, at exactly the correct time in each cycle, the necessary mechanical, electrical, or pneumatic devices for automatically carrying out the intended schedule.

In this controller, time measurement and pilot valve operations are handled by separate mechanisms. Separation of these two basic functions made possible a design that gives accurate timing of the factors under control, high speed, and torque for pilot valve operation, and flexibility of applications.

Timing is accomplished by a Telechron-drive aluminum disc on which is printed a 25-in. time scale. The desired schedule of operations is incorporated into the controller by cutting notches with a notching punch on the time scale. The location of these notches determines the time of operation of the cam mechanism.

Discs for new cycles or schedules of operation can be easily made. There are no air or mechanical connections between the timing disc and cam-operating mechanism. Time impulses are transmitted electrically.

The cams are individually adjustable and their setting does not require fine adjustment in order to get accurate results.



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Design Changes Stressed In G-E Dishwasher Line

BRIDGEPORT, Conn. — A new water inlet, simplified operating controls and improved cabinet design characterize the new line of General Electric dishwashers announced by C. J. Enderle, manager of the company's electric sink and cabinet division.

Facilitating installation and complying fully with requirements of modern plumbing codes, the new water inlet is incorporated in all three models—the electric sink (DE-748), the free-standing dishwasher (BE748), and the drop-in model (AE748).

The re-designed operating control assembly utilizes a new switch handle and improved construction to provide more positive action. The remote control on the drop-in model has been greatly simplified to facilitate custom-built installations.

Improved accessibility is provided to the interior of the cabinet model for storage and servicing needs. A re-designed cover support allows installation of the top-opening dishwasher underneath wall cabinets without replacing standard parts.

The new faucet assembly simplifies installation and provides for addition of a spray attachment without disturbing the original installation.

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No. 812-C ¾ to 1 HP. 12 CU. IN.
No. 809-C ½ to ¾ HP. 9 CU. IN.
No. 806-C ¼ to ½ HP. 6 CU. IN.
No. 803-C 1/6 to ¼ HP. 3 CU. IN.
REFILLABLE TORPEDO DRIERS (HAVE MICRONIC FILTERING ELEMENT)
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Easy to refill. Note generous surfaces for wrench hold.
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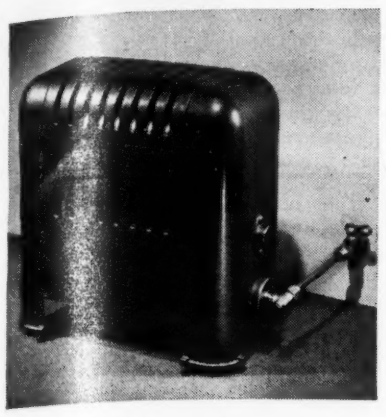
What's New (Cont.)



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Gas Heater Efficiency Augmented by Aluminum

LOS ANGELES—Appliance Mfg. Corp. here is producing a new circulating, gas space heater, which is being marketed under the Cladon-Hicks name.

Said to embody many wartime improvements, the unit has an 11,500 B.t.u. input, with a burner designed to utilize all of the gas with less than $\frac{2}{1000}$ of 1% monoxide generation.

Identified as Model No. 200, the heater has a scratch proof, heat resistant, golden brown hammertone finish and weighs only 10½ lbs. in the carton.

The manufacturer points out that the gas inlet is directly connected with copper tubing and brass tee, with volume adjustment. The lighting port is said to give positive ignition with no flash back. Greater heating capacity and efficiency are accounted for by its construction of prime ingot aluminum.

'Fire Stop' Paint Resists 3,000° F. Burner Flame

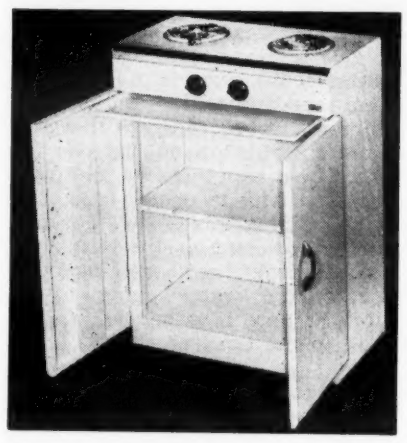
PITTSBURGH — "Fire Stop," described as a further improvement on fire-resistant paints originally developed for the Navy, is now available to the public for the first time, according to the manufacturer, Plicote, Inc., here.

Ready-mixed and self-sealing, the paint is said to completely cover wallpaper, plaster, composition, concrete, steel, brick, or wood in one coat. It is washable, comes in five new pastel tones plus white, and dries to a fine textured flat-finish surface for walls, ceilings, and woodwork, Plicote claims.

Although no finish or coating is proof against big fires, Fire Stop can prevent the great majority by stopping small fires before they spread, Ira R. Messer, vice president, declared.

"Laboratory tests prove that direct exposure to the blue flame of a Bunsen Burner at 3,000° F. for one full minute set fire to an ordinary painted wall and flames continued to spread rapidly after the burner was removed," the company points out.

"A wall covered with Fire Stop merely formed brown blisters when exposed to the same heat and flames extinguished themselves within 8 to 15 seconds after the burner was removed."



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2-Burner Kord Stove Has Capacity of 1,650 Watts

NEW YORK CITY—Kord Mfg. Co., Inc. here is manufacturing a chrome top, white baked enamel stove, which is said to have a capacity of 1,650 watts.

The two-burner surface offers 6-heat dial switches. A pull-out drip tray is provided with the unit, which measures 35 in. by 22 in. by 12 in., according to the manufacturer.

Cupboard space is provided below in the cabinet. The stove operates on 115 volt a.c. Retail price of the stove is $35.95.

* * *

Cory Corp. Markets New Humidifier Model 600

CHICAGO—Introduction of a new humidifier, known as Model No. 600, has been announced recently by Fresh'nd-Aire Co. here, a division of the Cory Corp.

It is claimed that the new unit will automatically add filtered and washed moisture to the air, thus increasing the relative humidity. Circulation of approximately 12,000 cu. ft. of washed air per hour is the rated capacity of the humidifier.

The new product, which is a companion to the company's air circulator, is 16½ in. high, 12 in. in diameter, and weighs 15 lbs. The fan is driven by a 48-watt shaded-pole electric motor, 60 cycles, 115 volts, a.c.

Capacity of the water reservoir, which keeps a constant flow of water over the filter, is 3 gallons, with evaporation ranging from ½ to 2 pints per hour, the manufacturer points out.

Introduction of the unit will be made to the consumer in *Better Homes & Gardens, Time,* and *Parents* magazines. It will retail for $59.50.

Method of Reactivating Lectrodryer Is Simple

PITTSBURGH — Immediate delivery can now be made on its laboratory model dehumidifier, known as the Lectrodryer because of increased production, announces the Pittsburgh Lectrodryer Corp.

Of aluminum construction, the laboratory unit is a compact, portable model said to be capable of drying flows of gas or air up to approximately 100 cu. ft. per hour, and the activated alumina dehydrant will adsorb about 5,500 grains of moisture before reactivation is necessary.

Varied applications such as drying refrigeration coils before installation, dehumidifying drying cabinets, and drying compressed air for lacquer spray guns are possible with the unit, it is claimed.

Dewpoints as low as -60° C. are obtainable with the laboratory model, which operates on pressures as low as 2 in. water or up to 15 p.s.i.

To reactivate the unit after it has adsorbed its capacity of moisture, it is merely necessary to plug a cord into a 110-volt a.c. or d.c. line for two or three hours and pass a small quantity of air through the dryer to remove the released moisture, the company states.

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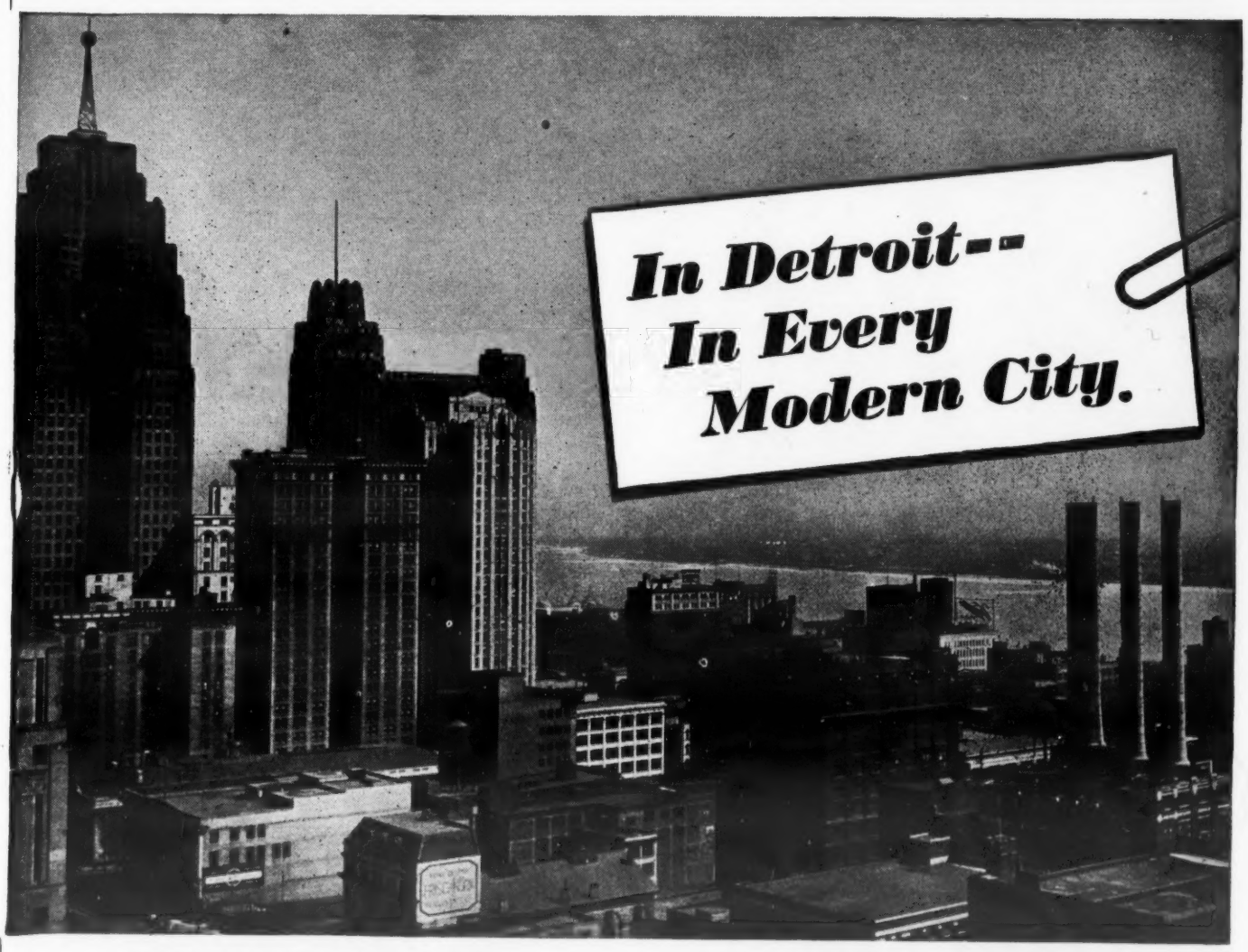

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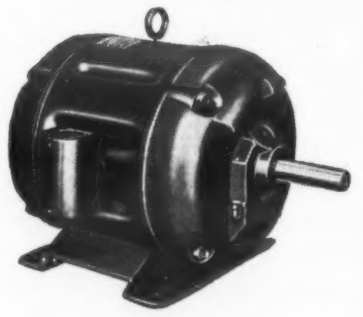

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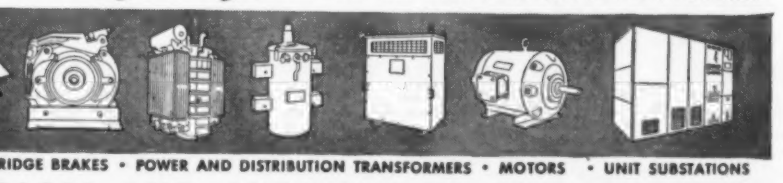

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Refrigeration Problems

And Their Solution

By P. B. Reed

For Service and Installation Engineers

Manager, Refrigeration and Air Conditioning Division, Perfex Corp.

The Oil Cycle (1)

It is an old saying that "Oil and water don't mix." Like many of the old adages, it is a generalization that is true under most conditions but is not true under all conditions.

In a quart can in which one pint of oil and one pint of water have stood for some time the oil and water are separate—the water in a layer filling the lower half of the can, and the oil forming the upper one-half. If the oil is yellow, green, or other characteristic color of oil, there is a sharp dividing line visible at the center where the oil and water join one another.

For most every-day purposes the oil and water are said to be separate. The water does not appear to have any oil in it, nor does there seem to be any water in the oil.

SOME WATER IN OIL

Nevertheless, there is a little oil diffused throughout the water, and a little water diffused throughout the oil. To prove that there is some oil in the water, draw off a little water from the bottom so as not to disturb the oil. The presence of some oil in the water can usually be detected by tasting a sample of the water drawn off.

Also there is some moisture in the oil, for if only the upper part of the oil were skimmed off and put in a refrigerating compressor, moisture trouble would ensue.

Refrigeration service engineers know from experience that oil absorbs moisture rather readily, for if a can of compressor oil is allowed to stand open to the atmosphere it absorbs enough moisture even from the air to cause trouble if that oil is used in a refrigerating compressor.

Liquids and vapors that are in contact with one another do mix to some extent even though they are usually considered, as are oil and water, to be non-miscible (not "mixable").

Suppose that we take our quart can of one-half water and one-half oil, and stir it vigorously with a stick or put a tight top on the can and shake it. Although the oil and water are not friendly to one another, they will be forcibly mixed together temporarily. As soon as the stirring or shaking stops they will begin to separate, the water going to the bottom because it is heavier, forcing the oil to the top.

MISCIBLE MEANS 'STAY MIXED'

Instead of oil and water suppose that we put oil and gasoline, naphtha or kerosene in the can, and stir or shake them as we did the oil and water.

They mix readily; in fact they dissolve into one another and do not separate even after we let them stand for hours.

Thus miscible liquids are those that stay mixed.

But it must be noted that the liquids do not separate just because they have different weights. True, oil is lighter than water and comes to the top, but there are other liquids than do not mix with oil but which are lighter than oil, and thus come to the top with the oil at the bottom of the mixture of these liquids and oil.

Moreover, oil and gasoline are not the same weight and yet they stay mixed. Thus the difference in density of two liquids does not determine whether or not they mix readily (are miscible), but simply determines, if they happen not to be miscible, which one comes to the top and which one goes to the bottom.

FEW EARLY REFRIGERANTS

In the early days of refrigeration the chemists had only a few refrigerants available that were suitable and that they were able to make in sufficient quantities at a low enough cost to make them economically feasible.

Of these early refrigerants, the three that were most widely used were ammonia, carbon dioxide, and sulphur dioxide. All three of them were immiscible with oil; ammonia and carbon dioxide being lighter than oil, but sulphur dioxide being heavier than oil.

In some ways, this immiscibility was quite an advantage. It tended to simplify the design and construction of the compressors, for it was much easier to separate the oil from the suction vapor entering the compressor.

If oil did get trapped in the receiver, accumulator, or evaporator, it was comparatively easy to drain it off and remove it.

Mixing of oil and refrigerant was no problem in the early ammonia and carbon dioxide compressors as most of them did not have enclosed crankcases, and this is still true in many of the large tonnage installations. In fact, in order to get oil for lubrication to the cylinder walls, rings and valves, it is necessary, with this type compressor to inject oil into the cylinders.

With the enclosed crankcase ammonia compressors there is some oil splashed or squirted on the cylinder walls for their lubrication and that of the pistons, rings, and valves. Some of this oil gets carried as a fine oil mist along with the hot discharge ammonia gas.

While the compressor is in operation this oil is forced to circulate with the refrigerant unless it gets trapped in a vessel such as an accumulator into which the gas and oil enter at the top and leave at the top. The oil gathers in this trap or sump, as it is sometimes called, and there is nothing to take it out. The ammonia gas cannot lift it up. If it ever gets into a straight line without traps it will be "dragged" along by the refrigerant.

OIL TO THE BOTTOM OF TRAPS

The large ammonia installations are usually attended by maintenance and operating engineers who watch the equipment. Since the ammonia or carbon dioxide liquid is lighter than oil and does not mix with the oil, the oil gathers in these traps such as may exist in receivers, condensers, accumulators, and evaporators.

The operating engineers can, from time to time, draw off the oil that has gathered at these points, by means of drain-cocks installed in the equipment for this purpose.

This does not very well lend itself to the automatically operated system that must go for months, or years even, with little or no attention except possibly oiling the motor bearings. This is one of the reasons that some of the other refrigerants have been more commonly used in the small automatically controlled systems.

OIL TO THE TOP WITH SO_2

Neither does sulphur dioxide mix with oil. Its action in the compressor is much the same as that described above for ammonia. Beyond the compressor the similarity ends, for sulphur dioxide is heavier than oil so that, when the compressor is not running, any oil in the receiver, accumulator, and other trap-like pockets in the system, comes to the top while any liquid refrigerant at that point stays at the bottom.

This characteristic facilitated the return of oil from the evaporator. All old-timers are familiar with the oil-return device in the low-side float used with sulphur dioxide. It took advantage of the fact that, during the idle period, the oil gathers at the top of the liquid in the float shell. As the liquid warms up it increases in volume and raises the blanket of oil to some small holes, called "skimmer" holes, in the outlet.

These holes are so positioned that the oil drains off into the suction line before the compressor starts again. By making sure that the suction line slopes gradually back to the compressor, the oil flows back by gravity.

If there are any traps in the suction line the oil gathers there and when the compressor starts, the oil in these traps is drawn back to the compressor in "slugs."

REFRIGERATING COMPRESSORS NOT OIL PUMPS

Refrigerating compressors are made to pump a compressible gas, not a non-compressible liquid. The

(Continued on next page)

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Early Refrigerants Weren't Miscible--

(Continued from preceding page)

ports and clearances of the valves are not large enough to pass large volumes of liquids, so during slugging, all of the oil does not get out of the cylinder in time. Valves may be broken, rods, or shafts bent, cotter keys sheared or more severe damage done, such as burst heads, twisted-off crankshafts or broken flywheels.

BOTH GAS AND OIL DIRECT TO CRANKCASE

In order to enable the oil coming back from the evaporator with the refrigerant suction gas to get back into the crankcase, the suction line must connect into the crankcase. In some early designs of sulphur dioxide compressors, no attempt was made to lead the suction gas to the cylinders, but instead the suction line connected directly into the "open" crankcase and the cylinders drew their gas from the crankcase through check-valves, called suction valves, in the heads of the pistons.

Therefore, the suction pressure and the crankcase pressure were the same. There was little tendency for the oil and refrigerant to mix so the oil in the crankcase contained very little refrigerant.

This does not mean that just because oil and sulphur dioxide do not readily mix, there can be no refrigerant in the crankcase.

CONDENSATION IN THE CRANKCASE

If the crankcase is in a cool or cold place, and during the idle cycle gets cooler than the evaporator, sulphur dioxide will condense out of the evaporator over into the crankcase. As a liquid it gathers at the bottom of the crankcase, with the oil above it.

When the compressor starts, the suction and crankcase pressures are reduced, and the liquid sulphur dioxide in the crankcase boils violently up through the oil and, due to this churning action or turbulence, much of the oil is thrown into the cylinders and "oil pumping" occurs.

So, just because a refrigerant is not miscible with oil does not mean than it cannot be mechanically whipped into or mixed with the oil, nor does it mean that oil pumping cannot occur.

For many years sulphur dioxide was the favorite refrigerant for household refrigerators, ice cream cabinets, water coolers, and other small commercial types of equipment. In fact, it is still used quite successfully in some makes of equipment.

AMMONIA STILL A POPULAR FAVORITE

Ammonia, another of the refrigerants to become widely used, still remains the well-nigh universal favorite for large tonnage equipment used for ice-making, cold storage, etc.

It is a very efficient refrigerant, requires comparatively small piping, is low in first cost, is well known to most operating engineers, operating pressures are not excessive, and has other desirable characteristics.

Carbon dioxide has some very undesirable characteristics; its operating pressures are very high, making it necessary to use very heavy and consequently very expensively constructed equipment. Also the amount of power required to produce refrigeration is high, making the cost of operation high.

One of the big advantages of carbon dioxide is the fact that it is not toxic nor inflammable and can be safely breathed in moderate concentrations with air. For these reasons, carbon dioxide was formerly popular for shipboard, hotels, hospitals, theaters, or other places where a large leak of a toxic or very pungent refrigerant such as ammonia or sulphur dioxide would be hazardous to large numbers of people.

CO_2 STILL POPULAR AS DRY ICE

Carbon dioxide has been largely replaced as a refrigerant by the newer, non-toxic, non-flammable refrigerants. Within recent years it is being used in increasingly large quantities in its solid form known as "dry ice."

As long as mechanical refrigeration was confined to large tonnage installations attended by operating engineers, ammonia and carbon dioxide served satisfactorily and there was little incentive to discover or devise other liquids that could be used as refrigerants.

The demand for the small refrigerating system for household and small commercial refrigerators led to a demand for refrigerants that were more suitable for those new uses.

DEMAND FOR NEW REFRIGERANT

A new refrigerant was needed that would operate efficiently; that would operate at lower pressures, so as to make it possible to use lighter and less expensive condensers, evaporators, lines, etc.; that was more stable (did not break down chemically, even in the presence of water or air); that was non-toxic and odorless but leaks of which could be readily and inexpensively located both in the factory and in the field.

It had to be non-flammable, would not support combustion and would not break down into toxic compounds in the presence of flames; would not readily absorb water or if it did, no corrosive or otherwise objectionable compounds would be formed; which would be inexpensive, and which would have other desirable properties such as high critical pressure and temperature, low freezing temperature, high net refrigerating effect per pound of refrigerant, high heat conductivity, low viscosity in both the liquid and vapor forms, etc.

Sulphur dioxide met some of these requirements; it was efficient; operated at low pressures for economical construction was low in cost, was non-flammable, and was desirable insofar as most of its thermodynamic properties were concerned but it was highly toxic and offensive and it formed corrosive compounds with water.

MISCIBLE OR IMMISCIBLE

Since the main refrigerants 25 or 30 years ago were not miscible with oil it was generally thought that the ideal refrigerant should be immiscible with oil. In fact, when the miscible refrigerants were introduced one of the points on which their use was resisted was their miscibility.

Next week we will study the introduction and characteristics of the oil-miscible refrigerants.

(To Be Continued)

Ice Cream is Easy to make with... ...EQUIPMENT
A FEW OF THE OUTSTANDING FEATURES OF THE NEW E.T. 20-HF
1 ALL PARTS ARE RUST PROOF
2 EVERY INCH OF THE CYLINDER IS FAST FREEZE
3 LARGE 1½ HORSE-POWER MOTOR
4 FOUR WAY SLOW SPEED DASHER
5 ALL SEAMS ARE ELECTRIC WELDED
6 ALL PARTS ARE SELF LUBRICATED
7 STAINLESS STEEL PANELS
8 BRIGHT DAIRY METAL CYLINDER FRONT.
THE FREEZER ILLUSTRATED HERE IS THE New
20-HF
(20-QUART HORIZONTAL FREON)
OTHER NEW Emery Thompson MODELS ARE NOW AVAILABLE
SEE YOUR DEALER
Emery Thompson MACHINE AND SUPPLY CO.
PIONEERS IN ICE CREAM FREEZER DEVELOPMENT FOR OVER 40 YEARS
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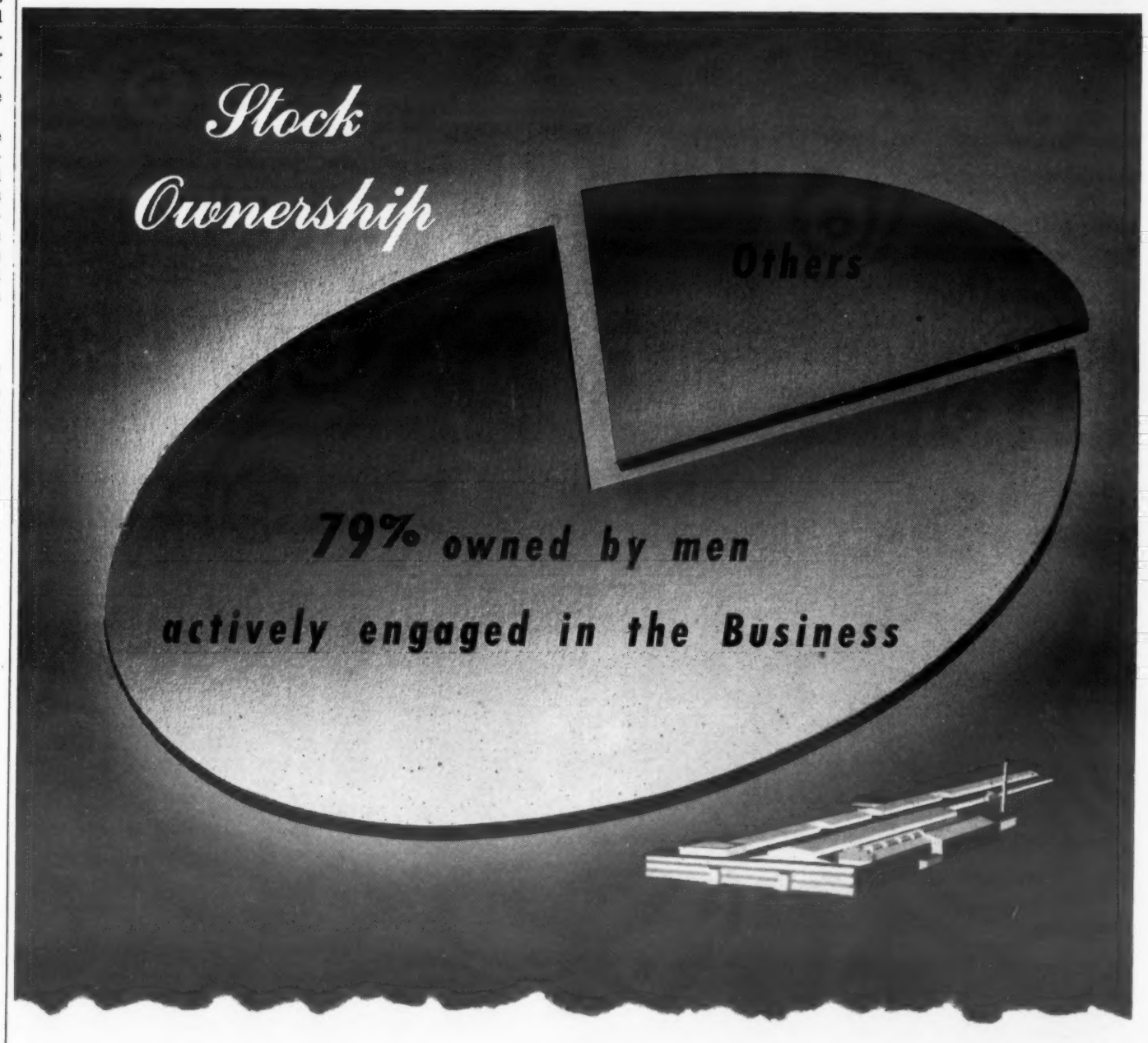
THE MASTER SERVICE MANUALS - - -

— — — and other books of the Refrigeration Library are depended upon as textbooks in trade schools from coast to coast.

BUSINESS NEWS PUBLISHING CO., DETROIT



A Brief for FREE COMPETITIVE BUSINESS

The vested right of investors to guide the progress of their enterprise is a priceless principle of a free competitive system of business. It tends to place responsibility in the hands of men thoroughly familiar with all phases of company activities. It provides a flexibility of operation that enables management to meet emergencies with practical decision and positive action. It is essential to industrial progress and national well-being.

Tecumseh Products Company owes much of its growth to the fact that 79% of its issued stock is owned by men actively engaged in operating the business.

Chieftain

TECUMSEH PRODUCTS COMPANY

Tecumseh, Michigan

PAR REFRIGERATION EQUIPMENT

Tops in PERFORMANCE ECONOMY and EFFICIENCY

Lynch Manufacturing Corporation

... By Comparison — You'll Buy PAR

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ATTRACTIVELY PRICED for PROFITABLE RESALE
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A Continuous Reliable Source of Supply

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VALVES AND FITTINGS
for Refrigeration
NORTHERN INDIANA BRASS CO.
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REFRIGERATION-HEATING
PARTS AND SUPPLIES
PAR condensing units.
We carry a stock to fill large and small orders. Try AUTOMATIC SERVICE and be convinced.
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HEATING & COOLING SUPPLY
DIVISION OF WEIL-McLAIN COMPANY
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REFRIGERATION, INC.
- FARM AND HOME FREEZERS
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- WALK-IN REFRIGERATORS
- FARM MILK COOLERS

DIVISION OF WILSON CABINET CO., INC.
SMYRNA, DELAWARE

The KEY *to* AIR CONDITIONING

One of a series from

by James J. LaSalvia

Editor's Note: Just how does the cost of an ice storage plant compare with mechanical refrigeration when it is employed for air conditioning? Take a typical installation, the author presents detailed figures on these comparative costs. Another method of obtaining refrigeration for air conditioning—the steam ejector system—is also discussed.

Refrigeration (Cont.)

COMPARATIVE COST

The comparative cost of an ice plant and a mechanical refrigeration system may be analyzed as shown in the accompanying breakdown, for a 25-ton job.

This analysis shows that it is not economical to use an ice plant in places where there is such a continuous duty as 10 hours per day for the whole cooling season. However, in places where cooling is required for a few hours per day or week, such as, churches, funeral parlors, and other places where the cooling period may average 400 hours and under per season, it may be advantageous to use ice.

STEAM EJECTOR SYSTEM

A steam ejector system is one which cools water with steam.

While refrigerants have been used to cool air as low as -100° F. the steam ejector can cool water only as low as 35° F., which in turn will cool air as low as 45° F.

The steam ejector is within the range of, and very adaptable to, comfort cooling if steam is available for this purpose.

We know that water boils and vaporizes at 212° F. when at atmospheric pressure of 14.7 p.s.i.a. At this point, there is no vacuum or pressure which can be measured by a vacuum or pressure gauge. Now if the atmospheric pressure is lowered, the water will boil at lower than 212° F. and at the corresponding temperature.

There is a boiling point temperature of water corresponding to its pressure. The boiling point of water depends upon the pressure to which it is subjected.

Vacuum is a minus pressure, so that the higher the vacuum placed on the water, the lower will be the temperature where it will boil or vaporize. The vacuum used in this type of system is as high as 29.673 in. Hg. which causes the water to vaporize at the corresponding temperature of 40° F.

Therefore, we can also say that water under high vacuums will vaporize at low temperatures. This is the principle upon which these systems operate.

Table 3 shows the pressure and water boiling temperature relation with steam.

Cost of Ice Storage Plant vs. Mechanical Refrigeration

Ice Plant

Estimated first cost—25 tons x $200 = $5,000	
If the cost is amortized for 10 years at 6% compounded annually, the cost of owning the system per year is 14.1% x $5,000 = ..	$ 705.00
The cost of ice per season at $4.50 per ton is 859 tons x $4.50 = ..	3,865.50
The electrical cost for operating the pump motor for 1,000 hours at 3¢ per kwh. is 2 kwh. x 3¢ x 1,000 hours = ...	60.00
The fan motor is assumed at 3 hp. with the electrical cost at 3 kwh. x 3¢ x 1,000 hours = ...	90.00
Total cost = ...	$4,720.50
Maintenance cost will be 2% of $4,720.50 = $94.41.	
Therefore, total owning, operating, and maintenance cost per year is $4,720.50 + $94.41 = $4,814.91.	

Mechanical Refrigeration

Estimated first cost—25 tons x $400 = $10,000	
If amortized for 10 years at 6% compounded annually, the cost of owning the system per year is 14.1% x $10,000 = ...	$1,410.00
The electrical cost for operating the compressor with a 25-hp. motor for 1,000 hours at 3¢ per kwh. is 25 kwh. x 3¢ x 1,000 = ..	750.00
The electrical cost for fan motor same as above is	90.00
The condensing water cost, using 1.5 g.p.m. per ton, is 2,250,000 gallons for the season at 20¢ per 1,000 gallons = ...	450.00
Total cost = ...	$2,700.00
The maintenance cost will be 2% x $2,700 = $54.	
Therefore, total owning, operating, and maintenance cost per year is $2,700 + $54 = $2,754.	
Ice plant total cost per year is	**$4,814.91**
Mechanical refrigeration total cost per year is	**$2,754.00**

Table 3—Pressure-Temperature Relations for Steam

Boiling Water Temperature °F.	Absolute Pressure In. of Hg.	Vacuum Required In. of Hg.
40	0.248	29.673
50	0.362	29.559
60	0.522	29.399
70	0.739	29.182
80	1.033	28.888
90	1.421	28.500
100	1.932	27.989
110	2.594	27.327

When water with a certain temperature and corresponding boiling point is sprayed into a closed vessel held at a lower boiling pressure, the entering water will meet the lower conditions and in so doing the excess heat of the entering water is dissipated in the form of flash vapor.

TRANE
PRODUCTS

Job After Job Calls for Heating *and* Cooling . . .
GET THE CONTRACT FOR *Both*...WITH TRANE PRODUCTS

Job after job now calls for both heating and cooling. Since the functions are so closely allied, often being accomplished with much of the same equipment, heating and air conditioning *must* be considered together.

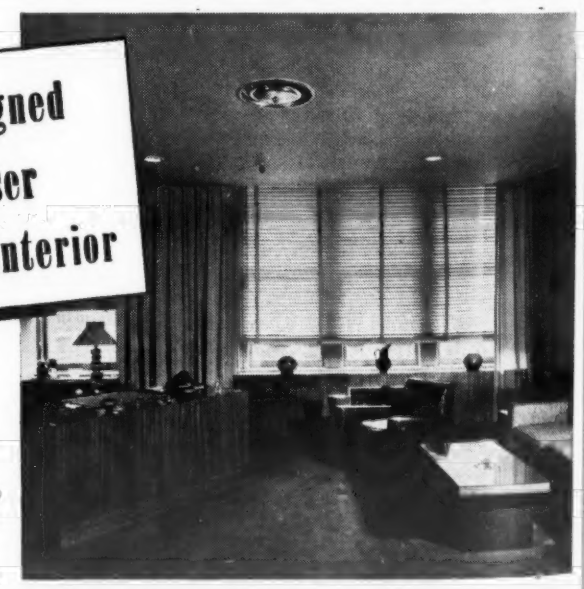
Architects, engineers, and owners prefer a minimum of contracts and responsibilities — so the contractor who can bid on the whole job has a much greater chance of getting it. The contractor who cannot bid on the whole job may likely lose it to one who can.

Heating and air conditioning are so closely related, from figuring the job through installing it, that it is only logical for the contractor to grow with the industry by combining heating and air conditioning. In this way, the contractor has peak business the year around, and is assured of a steadily increasing market in remodeling and modernization work, as well as in new construction. Just as the contractor needs both heating and air conditioning to make his service complete, the heating and air conditioning industries need additional contractors so that they can expand to meet the enormous demand.

Trane is the ideal source of supply for the independent contractor who combines heating and air conditioning. The complete Trane line includes every necessary product for entire heating and air conditioning systems — giving the contractor the undivided responsibility of *one* manufacturer. Trane field engineers in 85 field offices are constantly available for help and advice in any phase of heating and air conditioning.

TRANE
Manufacturing Engineers of Equipment for
HEATING AND AIR CONDITIONING
THE TRANE COMPANY, LA CROSSE, WISCONSIN • *Also* TRANE COMPANY OF CANADA, LTD., TORONTO, ONTARIO

Simply designed air diffuser blends with interior



Sheehan and Krech, Designers and Builders
Air Conditioning by Schwerin Air Conditioning Corporation

Provides complete air conditioning comfort by eliminating drafts, noise, hot or cold spots.

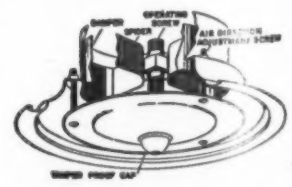
In addition to their unobstrusive appearance, Kno-Draft Adjustable Air Diffusers are specified for installations like the one pictured here in the offices of Schwarzenbach-Huber Co. because they combine all the advantages of scientific air diffusion plus adjustable features which assure positive air pattern control.

Kno-Draft adjustability increases efficiency and economy.

Diffusers improve occupant comfort by delivering conditioned air gently and thoroughly. Drafts and noise so often experienced with grilles, registers and other louvered devices are eliminated. Economy is increased. Diffusers handle greater air velocities and greater temperature differentials. This means less air volume, smaller, simpler ducts and fewer outlets.

To those advantages, Kno-Draft adds adjustment features that increase both the efficiency and economy of the air diffusion principle and a simplicity of design that blends with any interior.

Kno-Draft Direction Adjustment assures positive air pattern control by affording any angle of air discharge from vertical to horizontal that is needed to accommodate ceiling heights, individual or seasonal requirements. Volume adjustment is made with a patented damper that regulates the amount of air without affecting the velocity or diffusion pattern.



Send for FREE handbook that simplifies the selection and installation of diffusers. Write Dept. A-16 on your letterhead.

W. B. CONNOR ENGINEERING CORP.
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AIR DIFFUSION
AIR PURIFICATION
AIR RECOVERY
Representatives in Principal Cities • IN CANADA: Douglas Engineering Co., Ltd., 1405 Bishop Street, Montreal 25, P. Q.

'Dealers Need Fire Built Under Them'--

(Concluded from Page 1, Column 4)

every month, and will be offered on a participation basis, all distributors of major appliances in Philadelphia cooperating. The same will be true of model laundries, which will be shown as individual work centers for refrigeration, laundering, etc.

"We are using an extensive advertising program to create a demand for ultra-modern kitchens," Mr. Morrison said. "Utilizing newspaper ads, car cards, radio, a close tie-in with banks, and distribution of a circular through banks, which carries the story of the Kitchen Planning Center. One side of this circular will have a picture of the new kitchen of the month, every month."

Sell the idea and get people started thinking about complete model kitchens and model laundries for a better market, Mr. Morrison urged.

Election of officers for the year 1948 resulted in S. E. Strunk, secretary, Electrical League of Cleveland, being named president; J. Clark Chamberlain, secretary-manager, Bureau of Radio and Electrical Appliances, San Diego, vice president; and A. H. Kessler, manager, North Central Electrical Industries, Minneapolis, treasurer.

A lot of fireworks prevailed starting with the Thursday afternoon session when A. P. McNamee, manager of the appliance department of *McCall's* magazine presented "Appliance Retailing Two Years After the War."

Reporting the results of a country-wide survey of appliance-selling methods, Mr. McNamee excoriated appliance dealers everywhere for laziness, poor selling technique, and general apathy. Mr. McNamee pointed out many weaknesses of present-day appliance selling two years after the war, with high prices unjustified by dealer's presentation methods, etc.

"The situation has already become such that the marginal dealers are folding up everywhere," he pointed out. "And many dealers will find themselves following the same row unless they do something about selling organizations which have deteriorated after seven years of laziness.

"Most of the dealers of the country have lost their merchandising touch. I can count on my fingers the dealers I have seen to date who have any outside sales organization whatsoever. A few far-seeing retailers have set up goodwill building outside sales plans, are accepting trade-ins, and going about business on a pre-war basis. Otherwise, however, the only merchandising methods which are being used are excessive trade-in allowances, price cutting, etc.

CUSTOMER WAITS ONE HOUR

"The average dealer needs a hot fire built under him," Mr. McNamee snapped. "For example, I visited a leading department store in one city where six appliance clerks, who did not deserve the title of salesmen, were sitting casually in chairs, while a woman customer tried vainly to buy a home freezer on display.

"She spent an hour in the department, but not one of the salesmen got up to help her, and when the order was finally taken, it was obvious that the salesman considered he was doing her a personal favor. That kind of attitude is enough to spoil the appliance retailing industry."

Keeping his audience spellbound, Mr. McNamee also cited the fact that too few appliance dealers are using aggressive promotion and advertising. He mentioned one man, the fourth of four dealers in one block in a midwest city, who on a Friday sold $4,500 worth of appliances and on a Saturday $2,100 more without cutting prices in any way.

"This man believes in better service, car card advertising, newspapers, 64 bus cards a week, radio, and plenty of personal telephone calls to keep his business booming," Mr. McNamee said. "He wasn't cutting prices, but merely getting out and telling customers what he had, and backing it up with good service. That will always get results."

Pointing out that price-cutting is the biggest menace ahead, Mr. McNamee advised retailers not to "leave it up to the manufacturer" to carry out all advertising. Rather, he asserted, local advertising programs and local merchandising are the dealer's responsibility and his best need.

Mr. McNamee also took a crack at manufacturers when he pointed out that the dealer's biggest need is more models in the modest price ranges, rather than all "deluxe."

"Manufacturers are to be blamed for putting out only expensive models which discourage the housewife in all major appliances," he pointed out. "Not all of the blame goes from the dealer's door from other standpoints. There is too much faulty merchandise being delivered to dealers requiring much service, and too many tie-in sales.

GOODWILL JEOPARDIZED

"Manufacturers or distributors who insist that dealers accept off-brand major appliances, with over-priced window displays, extra charges, etc., are deliberately throwing away their valuable goodwill. I have talked to retail appliance dealers who have simply thrown the line out of the store rather than accede to brassy demands from their distributors."

Summing up, Mr. McNamee indicated that manufacturers, distributors and retailers alike are going to have a real sales job on their hands in the immediate future. He expressed disgust with the black market selling which has become a nation-wide menace, and pointed out that there are literally thousands of dealers in business who are merely "getting the gravy while it is good" and who will go out of the appliance business as soon as possible.

Next on the program was A. L. Scaife, manager of the advertising division, appliance and merchandising department of the General Electric Co. Mr. Scaife pointed out that every appliance dealer must clear up many misapprehensions and misunderstandings about profits, before the prices of major appliances must be justified.

He pointed out that many people think that national automobile manufacturers make 35% on every automobile sold, which brought a laugh from the assemblage. In pointing out that distribution cost is the chief reason for much increased appliance prices, Mr. Scaife presented a slide film "Calvin Cabot Kettles" which was the story of American enterprise, in covering a territory, appointing distributors, building a factory, etc.

To illustrate the reason for high distribution cost, he showed a second slide film which shows how distribution costs mount up when a housewife goes to the store, orders merchandise, asks for its delivery, and then refuses it after it has been delivered.

A film on the distribution of electrical current and how it is used was likewise run, again pointing out the high cost of operation.

"We've simply got to justify prices and give the public some idea of the distribution costs which are involved in the major appliances which eventually wind up in their homes," Mr. Scaife said.

Incidentally, he offered to supply the films, sans advertising to any distributor, manufacturer, or dealer who would like to put them to use.

F. E. Watts, executive assistant of *Farm Journal* magazine came up with a vitally interesting subject in "The Economic and Social Significance of Farm Electrification."

To illustrate clearly to appliance retailers how vast a market the newly prosperous farm market really is, Mr. Watts demonstrated farm income figures in relation to national economy.

He stressed the fact that balanced farm income is necessary to a prosperous national economy, and presented the fact that factory payrolls, when compared to gross farm income, show only $200,000,000 difference in a $5 to $10 billion figure.

"Go after the farm market, and sell electrical living," Mr. Watts urged. He described important applications of electricity and major appliances to the farm, citing instances in which electrification has immediately paid for itself on almost every farm. Particular examples stressed were mow curing of hay, electric water systems, and electrical milking progress.

Switching to the immediate major appliance market in the farm area, Mr. Watts showed a series of charts, which illustrated the buying power of farmers within a 50-mile radius of Minneapolis, St. Louis, and Columbus, Ohio. Better than 50 million dollars of purchasing power is represented in each, he said.

Freight Rate Boost--

(Concluded from Page 1, Column 2)

higher rates on less than carload lots for delivery from the distributor's warehouse to their stores or storage places.

"All of these things will be taken into consideration in the fixing or recommending of a list price by the manufacturer."

Refrigerators would get a boost of from $1 to $2 at the retail level, he figured. Washers would go up about $1 and ranges about $1.50.

J. H. Ashbaugh, vice president of the Westinghouse electric appliance division, stated however that "we do not contemplate at present any increase in appliance prices as a result of the freight increase.

"We pay freight costs for the shipment of appliances from our plants and this adds to our costs of operation. However, we have not yet appraised the effect of the 10% freight increase and will not know its full effects for some time."

Display Case Lights--

(Concluded from Page 1, Column 5)

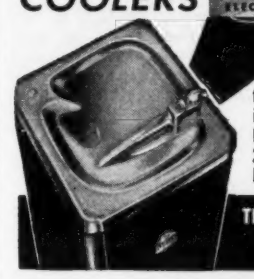
efficiency decrease, necessitating much corrective equipment.

"Realizing that this condition would sometime become of major importance, the Board of Water and Power Commissioners some years ago incorporated in the rules and regulations a section pertaining directly to low power factor gaseous tube lighting. At the same time, this section was incorporated in the electric service requirements of the Department of Water and Power.

"Specifically, since June 1, 1947, we require that the power factor be maintained at not less than 90% . . . for all tube rated units of 15-watt tube rating and over, and for all gas tube systems as shown in the requirements whenever used," explains Mr. Lewman.

TOPS IN WATER COOLERS

OASIS ELECTRIC WATER COOLER



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REAL BARGAINS ON
CONDENSING UNITS
With Delco Motors

4—⅙ H.P. Universal (Less Control)..$50.00 ea.
30—⅓ H.P. Universal (Less Control).. 57.50 ea.
60—½ H.P. Universal, Model #DD33 F.L.C. 110 ..... 85.00 ea.

Condensing Units—Less Motor—Control

50—⅓ H.P. Universal, Model #DD33 F.L.C. .....$50.00 ea.
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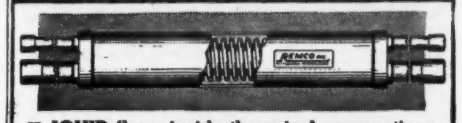
UNITED REFRIGERATION SALES & SERVICE CO.
5865 Baum Blvd., Pittsburgh, Pa.

REMCO "Liquid-Fin"
HEAT EXCHANGERS

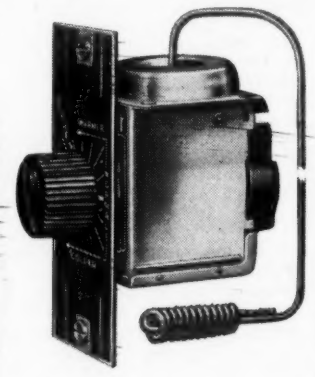


LIQUID flows inside the spiral corrugations in "prime" heat exchange relationship with the colder higher velocity suction gases which travel outside the rapid-transfer "Liquid-Fin" heat exchanger element. Capacity per unit size is very high. No. 4

ASK YOUR WHOLESALER . . . OR WRITE
REMCO, INC., ZELIENOPLE, PA.

CHECK WITH Ranco FIRST

	Specialists in Refrigeration	✓	Less Stock to Carry
	More Ranco Controls in Use		Greater Customer Satisfaction
	Dependability		More Profit For You



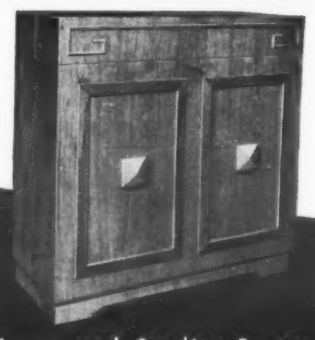
RANCO "All-Purpose" CONTROLS

There's no profit in carrying a large supply of slow-moving replacement parts . . . that's why the smart refrigeration service man specializes on Ranco Refrigeration Controls. Just two Ranco Controls are all you need to handle 75% of all the servicing jobs you'll have. Work with Ranco Controls for greater profit. Ranco Refrigeration Controls are available at leading wholesalers throughout the country.

See your Ranco wholesaler today, or write direct to Ranco Inc. for full information.

Ranco Inc.
COLUMBUS 1, OHIO
World's Largest Manufacturers of REFRIGERATION CONTROLS

New 1948 Credenza Model



Improved Quality Features You Can Promote Profitably Now

- Size, closed: 42" wide, 42" high, 18" deep
- 42 large ice cubes in one freezing
- Over 3½ cu. ft. of refrigerated storage
- Concealed liquor compartment
- 9 sq. ft. of serving bar with mirrored surfaces
- Decorator-designed cabinet adds a luxurious modern note to any style of interior
- 3 beautiful finishes: mahogany, walnut, limed oak
- Built-in cabinet lock for complete protection
- Refrigerator section is fully equipped with evaporator, 3 self-releasing shucker trays, glass drip tray, dial temperature control, adjustable shelf-rack, satin-finish aluminum lining and fibre glass insulation.

Universal Cooler hermetically sealed ½ H.P. Condensing Unit warranted for one year.

NOW READY FOR IMMEDIATE DELIVERY

Penguin refrigerated Bar
for Home, Office and Showroom

DELUXE SERVING BAR + ELECTRIC REFRIGERATOR + LIQUOR CABINET
all blended in a SUPERBLY ENGINEERED VALUE!

ATTRACTIVELY PRICED FOR FULL RETAIL MARKUP WITH FULL YEAR PARTS GUARANTEE

Write or wire now for complete details
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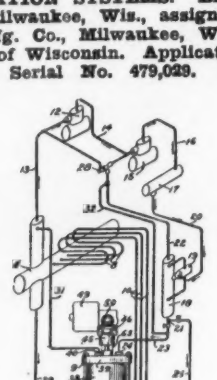
SERVICE COVERS THE NATION
2732 N. ASHLAND CHICAGO 14, ILL.
Dept. B

PATENTS

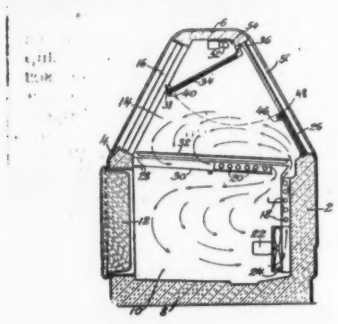
Week of August 12 (Continued)

2,425,452. DISTRIBUTOR FOR REFRIGERATION SYSTEMS. Ernst S. H. Baars, Milwaukee, Wis., assignor to The Vilter Mfg. Co., Milwaukee, Wis., a corporation of Wisconsin. Application March 13, 1943, Serial No. 479,029. 8 Claims.



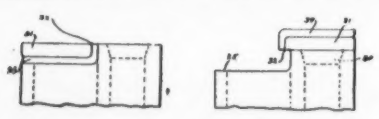
1. In a low temperature closed refrigeration system, several cooling elements having their outlets connected to a low pressure zone, a pair of compressors connected in series for delivering refrigerant from said low pressure zone to a high pressure zone, feed means for periodically delivering liquid refrigerant under the influence of the high pressure in said high pressure zone successively to the inlets of said cooling elements, and means for conducting cold liquid refrigerant directly from said low presure zone to said feed means.

2,425,473. REFRIGERATED DISPLAY CASE. Cyrus P. Hoffman, Trenton, N. J., assignor to C. V. Hill & Co., Inc., Trenton, N. J., a corporation of New Jersey. Application July 28, 1945, Serial No. 607,513. 4 Claims. (Cl. 62—89.5.)



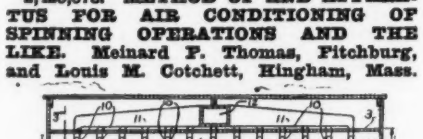
1. A refrigerated display case embodying a refrigerating unit, means forming a display space, deflector means extending along the front edge of said display space, and a movable access and viewing means pivotally mounted at its upper edge for movement about a horizontal axis to an open and rearwardly inclined position permitting access to said display space, and interengaging fastening elements positioned on the rear wall of said display means and the lower edge of the movable access and viewing means engagable to hold said access and viewing means in an open position.

2,425,505. TWO-LEVEL REFRIGERATOR. John H. Benson, Salem, Ohio, assignor to Mullins Mfg. Corp., Salem, Ohio, a corporation of New York. Application Nov. 18, 1944, Serial No. 564,129. 6 Claims.



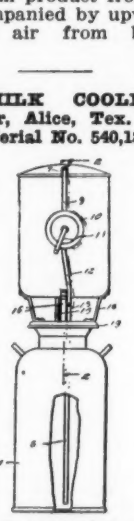
5. In a refrigerator cabinet, upright walls including a partition defining two adjacent compartments, the compartments being open at the top at different levels, and a single closure means consisting of two members hinged together, one of which covers the higher compartment and the other of which covers the lower compartment, the member covering the lower compartment being L-shaped in cross section having the vertical portion of the L lying adjacent the partition and hinged to an edge of the other of said members which is provided with a bottom surface composed of a hard abrasion resistant material to serve as a work surface.

2,425,578. METHOD OF AND APPARATUS FOR AIR CONDITIONING OF SPINNING OPERATIONS AND THE LIKE. Meinard P. Thomas, Fitchburg, and Louis M. Cotchett, Hingham, Mass.



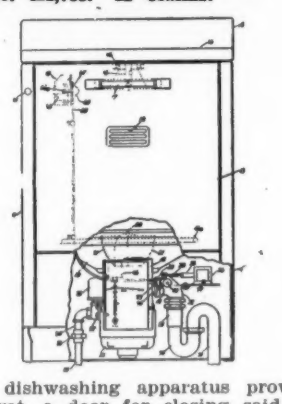
1. The improvement in the air conditioning of a complete textile operation as performed in a closed room by a large number of similar machines each adapted to perform a similar textile operation involving for each machine a roving supply a drafting process and twisting and packaging process, which consists in conditioning air to a predetermined degree as to relative humidity and temperature and introducing such conditioned air simultaneously to all of said machines in a plurality of separate downwardly directed streams to all of said machines so that the relative humidity is greatest and the temperature lowest at the roving supply and with the relative humidity gradually diminshing and the temperature increasing at said drafting, twisting, and packaging processes, in the same degree with respect to each machine to positively control the regain of the yarn and thereby obtain a uniform product from the textile operation accompanied by upward exhaust of the used air from between the machines.

2,425,596. MILK COOLER. James Franklin Carter, Alice, Tex. Application June 14, 1944, Serial No. 540,187. 2 Claims.



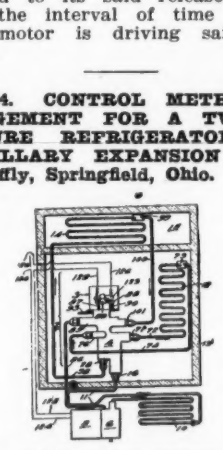
1. In a cooling apparatus, a refrigerant containing receptacle, a liquid container closure on which the receptacle is mounted for supporting it thereabove, a conduit having ends projecting from the inner side of the closure and positioned thereby for submersion in the liquid contents of a container, on which the closure is mounted, said conduit having a coiled portion disposed in the receptacle and a leg disposed on the exterior thereof, and manually operated transfer means interposed in said leg for circulating a liquid, into which the ends of the conduit extend, through said conduit.

2,425,620. DISHWASHING APPARATUS. Leslie A. Kempton, Chicago, Ill., assignor to Hotpoint, Inc., a corporation of New York. Application Dec. 5, 1941, Serial No. 421,788. 12 Claims.



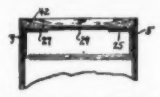
1. In dishwashing apparatus provided with a vat, a door for closing said vat, latching means for said door movable to a position to latch the door closed and to a position to release the door, means for supplying liquid to and draining liquid from said vat, and means for circulating liquid in said vat, control means for said apparatus comprising electroresponsive means for controlling said liquid supply and draining means to control the admission of liquid to and the drainage of liquid from said vat, and also controlling the operation of said liquid circulating means, switching means controlling the operation of said electroresponsive means, a control member for said switching means operable from an "off" position to succeeding controlling positions operating said switching means so as to effect the operation of said electroresponsive means to operate said liquid supply and drain valves and said circulating means to perform a series of timed operations in a timed washing cycle, an electroresponsive timing motor, a clutch for effecting a driving connection between said timing motor and said control member, means operating said clutch to connect said control member with said timing motor and for energizing said timing motor to drive said control member, and for disconnecting said control member from said timing motor when said timing motor is deenergized, a spring tensioned when said control member is being driven by said timing motor for driving said control member to its "off" position when said control member is disconnected from said timing motor, and a switch operated by the movement of said latching means to its latching position controlling said timing motor so that said timing motor can not be energized unless said door is latched, and said switch being operated to deenergize said timing motor so as to permit said spring to restore said control member to its "off" position if said latching means is moved to its said released position during the interval of time that said timing motor is driving said control member.

2,425,634. CONTROL METHOD AND ARRANGEMENT FOR A TWO TEMPERATURE REFRIGERATOR USING A CAPILLARY EXPANSION DEVICE. Glen Muffly, Springfield, Ohio.



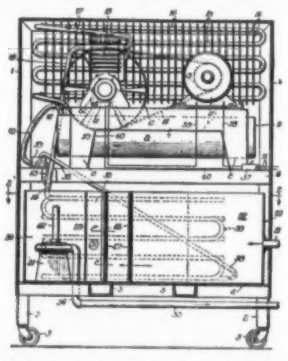
2. In a refrigerating system, a pair of evaporators, a pair of valves in mechanically opposed relationship, one of said valves controlling a suction passage leading from one of said evaporators and the other of said valves controlling liquid refrigerant flow to the second of said evaporators, refrigerant flow control means controlling the flow of refrigerant to said second of said valves, the connection between said valves being so constructed and arranged that the closing of one valve causes the opening of the other, and means for operating said valves for the purpose of controlling the selective cooling of said evaporators, one evaporator being designed to operate at a lower pressure than the other.

2,425,642. SEALABLE CARTON FOR FROZEN FOODS. William A. Ringler, Wayne, Pa., assignor to The Gardner-Richardson Co., Middletown, Ohio,



1. In a sealable knocked down box, a tubed sleeve of coated boxboard having articulated enclosing body walls, end closure elements for said sleeve having wall portions to extend across the tubular sleeve and lateral flaps, and an inner sleeve in telescoping relationship with said first mentioned tubed sleeve, said lateral flaps on said closure elements being insertable between the walls of said first mentioned sleeve and said inner sleeve, said inner sleeve having at its ends articulated flaps foldable to a position substantially at right angles to the walls of said inner sleeve, whereby said closure elements are supported and maintained in a position with said wall portions extending across end portions of said first mentioned sleeve so as to close said sleeve but with said wall portions spaced inwardly from the actual ends of said first mentioned sleeve to leave a recess into which a liquid sealing substance capable of bonding with the coating on said body walls may be introduced to form a seal between said closure elements and said first mentioned sleeve, and bridging across the body walls of said first mentioned sleeve.

2,425,703. COOLANT CONDITIONING SYSTEM. Normand W. Morse, Chicago, Ill., assignor, by mesne assignments, to Gray-Mills Corp., Evanston, Ill.



1. Refrigerating apparatus for conditioning sediment bearing coolants comprising a frame, a tank mounted on said frame, a sediment reservoir in said tank, an inlet for admitting sediment bearing coolant into said sediment reservoir, filter means including a wall of said reservoir arranged inside the tank, and a pump in the tank for removing coolant therefrom and thereby drawing liquid through the filter from the sediment tank into the reservoir.

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POSITIONS WANTED

COMMERCIAL AND domestic service man. Seven years experience on low pressure systems can install and service multiple and sub zero systems. Now employed, but will go anywhere in the United States for a full time year around job. RAY G. LEONARD, 2525 Vargrave Street, Winston-Salem, N. C.

REFRIGERATION ENGINEER, 20 years experience all types refrigeration and air conditioning. Field service engineer for compressor manufacturer, parts jobber, or service manager and refrigeration buyer for grocery chain. Prefer Middle-West. Highest references. BOX 2531 Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

FACTORY PRODUCTION man assistant to Superintendent with experience in production of commercial refrigerators, coolers, cases, etc., with knowledge of wood and metal construction with firm over 60 years in business. Give full qualifications, references and salary. C. L. PERCIVAL REFRIGERATION COMPANY, Boone, Iowa.

IMMEDIATE OPENING for test and development engineer. Recent graduate of established engineering school with previous refrigeration experience desirable but not absolutely necessary. Excellent opportunity. Write, wire or apply in person, Personnel Department, UNIVERSAL COOLER, Division of International Detrola Corporation, 299 Joseph Street, Marion, Ohio. Phone Marion 2357.

REFRIGERATION MANUFACTURING process inspector. Working from Engineering Department. Duties consist of policing and inspection of refrigeration processes in condensing unit manufacturing. Must have previous experience. Preferably college graduate or refrigeration technical school. Steady, salary. UNIVERSAL COOLER, Division of International Detrola Corporation, 299 Joseph Street, Marion, Ohio. Phone Marion 2357.

SALES ENGINEER: Young man desired for estimating and selling ammonia and "Freon" machinery installation, should have technical training and be thoroughly competent, Virginia territory. Write giving full qualifications and experience to BOX 2520 Air Conditioning & Refrigeration News.

ASSISTANT MANAGER for leading Midwest refrigeration supply wholesaler. Requires previous experience as counter or salesman of refrigeration parts. BOX 2526 Air Conditioning & Refrigeration News.

OPENING FOR experienced refrigeration counter salesman to handle new branch store for well established refrigeration parts wholesaler located in Midwest area. Write stating experiences. BOX 2527 Air Conditioning & Refrigeration News.

EXPERIENCED CABINET designer for board work on low and moderate refrigeration cabinets. Excellent opportunity with a well-known Midwest manufacturer of refrigeration products. BOX 2532 Air Conditioning & Refrigeration News.

BRANCH MANAGER commercial refrigerator fixtures, (no air conditioning). Must know butcher tool line and supplies. Only man proven record need apply. Old firm centrally located. Must have sales ability, train salesmen, assume full responsibilities. Give qualifications and reference. One of best paying positions in industry. BOX 2533 Air Conditioning & Refrigeration News.

FACTORY REPRESENTATIVE to headquarter Detroit and travel entire country promoting commercial refrigeration sales through dealer contacts and regional meetings. Nationally advertised line includes domestic home freezers. Excellent earning possibilities. Experience in specialty selling and/or refrigeration essential. Reply with brief particulars for further negotiation to BOX 2534 Air Conditioning & Refrigeration News.

WANTED SALESMEN who are now calling on refrigeration dealers to augment their present incomes by introducing a new line of sales. Designed freezer cabinets which are planned to move merchandise, liberal commissions, easy to sell. For full particulars write BOX 2535 Air Conditioning & Refrigeration News.

EQUIPMENT WANTED

COUNTER FREEZERS wanted for resale: Used freezers, 1½, 2½ and 5 gallon sizes, in good condition. Prefer Taylor but will accept Basitan Blessing also. No others considered. Write make, size, age, condition and price to BOX 2512 Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

SELLING OUT way below our wholesale costs the latest type new upright modernistic stainless steel frozen food cabinets, sizes 16 and 20 cu. ft. Also beverage coolers, dry-type. For a good buy, write ACME REFRIGERATION CO., 634 Dean Street, Brooklyn, New York.

MOTORS AND condensing units—available at once—⅛-¼-⅓-½ Universal condensing units with or without motors. Special—six hole ice-cream cabinets with ¼ hp. Copeland units less motors $225. Also beverage coolers, beer equipment, stainless steel reach-in freezers. ALBROD CORP., 319 West 48th St., New York City 19, CI 6-9100.

LIQUIDATING $70,000 stock of 22-32-40-60-80 cu. ft. reachins, remote and self-contain models; all sizes of condensing units, electric water coolers, freezer plates, electric meat slicers, meat choppers. At less than factory prices. A real opportunity. Write AMERICAN COMMERCIAL EQUIPMENT CO., 4150 Holly Knoll, Los Angeles 27, California. Normandy 0450.

SELLING OUT: used (as is) and rebuilt Frigidaire and Kelvinator condensing units with new s. ph. capacitor motors. Write for list. EDISON COOLING CORP., 310 E. 149th Street, Bronx 51, N. Y.

NEW ⅓ HP Universal condensing units—Delco motors—3 pounds charge of "Freon"—dehydrator—rubber mounts. Still in original crates—$66.00 FOB Wheeling. Write or wire KOLD MAKERS, INC., 3746 Jacob Street, Wheeling, W. Va.

FOR IMMEDIATE disposal our inventory new Universal compressors complete with motors, 3, 5, 10 HP water cooled—original crates. Water defrost coils Drayer-Hanson 1900 WD—2600 WD also Recold 1344LT. Wholesale cost. LOCKER ENGINEERING COMPANY, 521 No. La Cienega Blvd., Los Angeles 36, California.

DECALCOMANIA—BUILD up your business by advertising with our lacquer name plates, bearing your name and address. Brilliant colors, attractive designs. Write us for samples and prices. This is an economical way to advertise. MAIL ORDER DECAL CO., 30 W. Washington, Chicago 2, Illinois.

WALK-IN COOLERS, sectional. Kiln-dried fir throughout. 4 in. fibre glass, natural finish, $.95 per sq. ft. Beer coolers, $.85 per sq. ft. Cooler and freezer doors as low as $36.50. No extra charge for special sizes. Florist boxes. Wholesale only. MIDWEST MANUFACTURING CO., 101 Glenwood, Minneapolis 2, Minn.

½ HP F. C. Crew condensing units, new, in crates, with G. E. motors, sacrifice, $89.00 each. PERFECTION BAR CORPORATION, 1640 East 65th Street, Cleveland, Ohio.

SACRIFICING BRAND new Copeland and other top brands. Condensing units in original crates. ⅛, ¼, ⅓, ½ HP air-cooled. 1½ and 3 HP water-cooled. All priced for immediate clearance. Write or wire now. ROCHELLE REFRIGERATION COMPANY, 31 East 4th Street, New York 3, N. Y.

SEALED CROSLEY TERMINALS. Installed from the outside in a few minutes without opening the compressor. Corrects leaky terminals on all Crosley "F-12" units. Set of three $5.25 (Part No. 1020). Installation tool 20¢. Immediate delivery. Money-back guarantee. SEALED UNIT PARTS CO., 3097 Third Ave., New York 56, N. Y.

IMMEDIATE DELIVERY—¼ HP refrigerator motors $25. ½ HP refrigerator motors $30. ½ HP refrigerator motors $40. Full line ice cream cabinets 2-12 holes, complete with condensing units; ¼ HP to ½ HP condensing units with motors; GEMCO 5-ton air conditioning unit $1,000. Reach-ins, beverage coolers, display cases. Reducing inventory. BOX 2524 Air Conditioning & Refrigeration News.

LARGE QUANTITY of packaged air conditioning units, 5 and 7 ton, 4 and 6 can milk coolers and ¼ HP Copeland compressors. Will sell at cost. BOX 2536 Air Conditioning & Refrigeration News.

BUSINESS OPPORTUNITIES

EASTERN MANUFACTURER specializing in air conditioners, room coolers, freezers, ventilators and fabrication of all types of sheet metal work has open time on most plant facilities. Presses up to 100 tons. Inquiries with full details are invited. BOX 2514 Air Conditioning & Refrigeration News.

WELL ESTABLISHED commercial refrigeration store, fixture business, sales and service. Located fast growing Los Angeles. Average about $300,000 yearly. Building 6,400 sq. ft., 80 ft. frontage, parking rear. Service shop, tools and trucks. Sell complete or business only. $25,000 down and financed balance. Make offer. BOX 2538 Air Conditioning & Refrigeration News.

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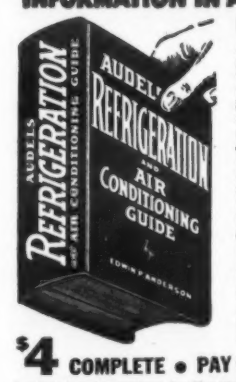

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Auto Hoist Speeds Loading, Deliveries

DES MOINES, Iowa—When C. O. and C. A. Howell of Des Moines, Iowa, decided to build new quarters for their refrigeration and air conditioning business, they thought in terms of increased convenience for their customers, and greater ease of handling of heavy units. As a result, the building has a number of unusual features, of which the automobile-type hoist, installed outside the rear loading doors, is perhaps outstanding.

This cut-down garage hoist is similar to those used in filling stations everywhere. Before installation, it was customary to maneuver vans into position, place planks and roll the merchandise up or down the incline.

This often called for the hiring of extra men; sometimes, for a variety of reasons, the goods failed to move on schedule, in which event the Howells paid the additional helpers for services which they had not rendered.

The hoist, total cost of which ran around $600, has paid for itself in the year it has been in use. Two men can roll the heaviest piece of refrigeration equipment onto the hoist, turn a valve, and, seconds later, roll the goods onto the waiting truck.

The Howells have speeded unloading and loading operations—and at the same time have effected a substantial reduction in the cost of their overhead.

Loading & Unloading Time Slashed to One-Fourth by Hoist

Quicker deliveries and and lowered costs have resulted from use of this auto-type hoist, say C. O. and C. A. Howell, refrigeration men in Des Moines. Here the hoist has been raised to truck level to unload a heavy piece of equipment.

After the equipment is rolled onto the hoist, the truck pulls away so that the hoist can be swung around and then lowered to the level of the warehouse floor. Costing $600, the hoist paid for itself in a year in time and help saved.

Jahco Folder Describes Details on ½-hp. Unit

CLEVELAND — Complete details and specifications on its new ½-hp. condensing unit now in production here are contained in a folder just published by Jack & Heintz Precision Industries, Inc.

The folder, SF-5003, also includes data on Jahco units of ¼ and ⅓ hp.

The ½-hp. unit was designed to fall into the light-duty classification "to simplify the selection of sizes in borderline cases where a 'third' would produce insufficient heat removal and a heavy-duty 'half' would be impractical from the standpoint of both first cost and operating cost," according to the folder.

"The unit is powered by a special ½-hp. capacitor-type motor," the folder continues. "The condenser has four banks of tubes and is especially designed for the maximum heat transfer with the minimum frontal area."

It is explained that the ⅓-hp. unit was designed for use in either self-contained or remote applications. Hourly rate of heat removal is said to have been made greater by increasing the effective hourly displacement and by using three banks of tubes in the condenser.

The ¼-hp. unit was designed for compact applications with a choice of low or high suction temperature, the folder points out, adding that the condenser has two passes.

Pharmacy Candy Cooled

WATERTOWN, N. Y. — Baker Pharmacy, 566 State St., has installed a new refrigerated candy department, it was announced by C. W. Graves, proprietor.

New Listings Featured In Alter Fall Catalog

CHICAGO—The Harry Alter Co., Inc., announces that they are now mailing their new fall and winter catalog, Harry Alter's Dependabook No. 145.

Among the many new items listed for the first time are genuine replacement Westinghouse electric motor parts, White-Rodgers controls, a complete line of Triplett meters and testers, and the new Wabash "Sep-Return."

The catalog includes all the latest price revisions. The front cover is a four color Fall scene, and the back cover pays tribute to many of the manufacturers in the refrigeration industry. Copies may be obtained by a request made on a company letterhead.

Mueller Nets $1,723,675 First 9 Months This Year

PORT HURON, Mich. — Mueller Brass Co. here has reported a net profit of $1,723,675, equal to $3.25 per share for the nine months ending Aug. 31. Profit for the same period a year ago was $353,937, equal to 67 cents per share.

Net profit for the quarter ended Aug. 31 was $353,937, or 66 cents per share, against $155,786, or 29 cents per share for the same quarter last year.

Dept Store Sales Show 24% Increase for Week

WASHINGTON, D. C. — National department store sales during the week ended Sept. 27 were 24% above those for the same period last year, according to the Federal Reserve Board.

Part of the increase was due to a 62% gain in the Cleveland district and a 35% advance in New York and Newark. The board explained that power shortages in Pittsburgh allowed stores to open on only one day during the corresponding week last year and that work stoppages in the trucking industry depressed sales in the New York district during the same period.

All other districts but one reported substantial gains. Sales in the San Francisco district declined 1% from the 1946 period.

Increases were reported as follows: Philadelphia, 24%; Richmond, 24%; Chicago, 22%; St. Louis, 20%; Boston, 17%; Kansas City, 16%; Atlanta, 14%; and Dallas, 11%. Minneapolis is included in the U. S. average but is not reported separately.

The board said sales for the four-week period ended Sept. 27 were up 7%. The weekly index on that date was 317, compared with 301 for the week ended Sept. 20 and 257 for the week ended Sept. 28 last year.

Shop Addition Planned

LOS ANGELES—Building permit has been issued for construction of a $6,500 addition to the shop building at 12615 Grenshaw Blvd., here, for the Mission Appliance Corp.

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NOW you can get fine *Underwriter's Approved* candelabra Dial Light Socket Assemblies by DRAKE! The No. 900 series is designed for radio use, and the No. A900 series for general use. Both are double contact, candelabra, bayonet Assemblies housing 115V household type lamps, available from 5 to 25 watts. They are U.L. approved for 75W-125V service. Can also be used with 6V automotive lamps.
The bayonet type eliminates vibration-loosened lamps and requires less space than screw type. Can be supplied with any type mounting bracket. Lead-in wires from 2½" to 60". Made to traditional DRAKE standards of precision and rugged dependability. Check with our engineers on your requirements, *today!*
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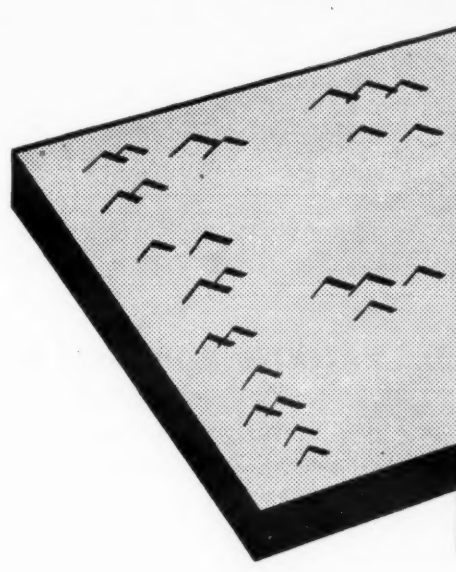
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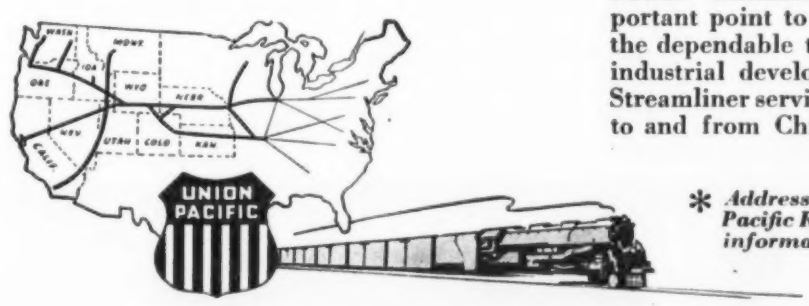
One of a series of advertisements based on industrial opportunities in the states served by the Union Pacific Railroad.
In Wyoming manufacturers will find a vast amount of raw materials. It is a leading state in potential mineral resources; produces great quantities of iron . . . has the world's largest untapped supply of coal. Copper, silver, gold, lignite and bentonite are among the mined metals and minerals. The State contains 27 oil fields and large timber lands.
Wyoming is one of the greatest of livestock States, producing fine beef cattle. Its wool clip is tremendous. Poultry raising and dairying are important activities. Principal crops are sugar beets, potatoes and grains.
The healthful climate . . . scenic and recreational attractions such as Yellowstone-Grand Teton National Park and scores of dude ranches . . . a fine educational system . . . are incentives to living in this western region.
★ ★ ★ ★
Cheyenne is one of the principal Union Pacific mainline cities; an extremely important point to the railroad which provides the dependable transportation so essential to industrial development. For travelers, daily Streamliner service is available from Cheyenne to and from Chicago and the Pacific Coast.


Address Industrial Department, Union Pacific Railroad, Omaha 2, Nebraska, for information regarding industrial sites.
UNION PACIFIC RAILROAD
THE STRATEGIC MIDDLE ROUTE

Frozen Food Sales--

(Concluded from Page 1, Column 2)

discussed major phases of frozen food merchandising.

Mr. Burston termed department store home delivery of frozen foods in refrigerated trucks under close control a pioneering development in frozen food merchandising and a vital step in the proper distribution of these products.

While reviewing accomplishments of his various operating units in home delivery and over-the-counter operations, H. Robert Zolbert, of Allied Stores Corp., said the organization has set a frozen food sales goal much higher than its present "already respectable" level.

Why Marshall Field & Co. is merchandising frozen foods was the subject of a talk by the Foundation's president, Charles W. Folds. He stressed the importance of the frozen food department in building up the community prestige and institutional character of the department store and described the success Marshall Field is having in freezing its own tea-room and restaurant specialties for sale through the frozen food department.

Lee L. Stratton, of Crosley Corp., analyzed the growth and future prospects of home freezer sales and outlined various plans for effective appliance promotion. Compared with the history of refrigerator and other appliance sales, the home freezer industry can take much pride in its accomplishment to date, he said.

Other talks were given by Gerald Boyce, of the Foundation staff, and Paul Roberts, special consultant for Frozen Food Products.

A series of wall and table displays demonstrated various Foundation services and activities of its research kitchen and packaging, bacteriology, nutrition, and other laboratories. A special frozen food luncheon and snack bar were highlights.

All Foundation officers were re-elected. They are Mr. Folds, president; Thomas W. Johnston and Harold J. Nutting, vice presidents; Donald French, vice president and treasurer; Gerald A. Fitzgerald, secretary; and John H. Baker, assistant treasurer.

The following board of trustees and alternate trustees were elected:

Irving B. Babcock and R. C. Cosgrove, Avco Mfg. Corp.; Max E. Friedmann and Joseph Feldes, Ed. Schuster & Co., Inc.; Mr. Johnston and Harold Hirsh, R. H. Macy & Co., Inc.; Fred Lazarus, III, The John Shillito Co.; Paul M. Mazur and Mr. Burston, Frozen Food Products, Inc.; Mr. Nutting and Mr. Folds, Marshall Field & Co.; Allan A. Park and D. M. Allan, The T. Eaton Co., Ltd.; B. Earl Puckett and Mr. Zolbert, Allied Stores Corp.; Lewis B. Sappington and Frank J. Wilton, The J. L. Hudson Co.; and E. Cloud Wampler and Mr. French, Carrier Corp.

In addition to the stores mentioned, these others were also represented at the meeting: The May Co.; B. Gertz, Inc.; The A. Polsky Co.; The Morehouse-Martens Co.; Joske Bros. Co.; Herpolsheimer Co.; The Golden Rule; The Rollman & Sons Co.; Jordan Marsh Co.; and Dey Bros. Co.

Bell Aircraft To Make Electric Dishwashers

BUFFALO — The Bell Aircraft Corp. is reported to have signed a long term contract valued at more than $10,000,000 with the Kitchen Kraft Corp. of Chicago for the manufacture of electric domestic dishwashers.

Thomas Howard, president of Kitchen Kraft, stated that Bell would start immediately on a pilot run of 25,000 units. He expressed the hope that Bell would be able to produce 100,000 units within a year. Bell would start with an assembly operation and later develop it into the complete fabricating process, he said.

MANUFACTURERS!
of
MILK DISPLAY CASES
WE HAVE THE MARKET
DO YOU HAVE THE CASE?
Must be a competitive price.
Send us full particulars in first letter.
Box No. 2537, Air Conditioning & Refrigeration News

G-E 9-Month Orders 39% Ahead of 1946

SCHENECTADY, N. Y. — The $912,090,000 orders received by General Electric Co. during the first nine months this year were 39% ahead of the corresponding period last year, announces President Charles E. Wilson.

An increase of 144% was chalked up the first quarter this year over last, while the second and third quarters represented gains of 8% and 27% for each quarter, respectively.

The first quarter increase over 1946 may be considered abnormal because the company was on strike for nine of the first 13 weeks last year, explained Mr. Wilson.

Norge Expansion Moves--

(Concluded from Page 1, Column 5)

Chattanooga, Tenn., factories are being increased also.

It is, he said, a continuation of an expansion program which was launched at war's end, and which saw the purchase of a plant in Effingham, Ill., construction of one in Herrin, Ill., and acquisition of one in Chattanooga, Tenn.

When the work is completed in Effingham, total floor area will be approximately 215,000 sq. ft., nearly double that contained in the factory when it was purchased late in 1945. This move was made to permit an increase in range production, and an addition of a third assembly line.

In Herrin, at the washing machine plant, floor area is being increased approximately one-fourth and factory engineers estimate that this will allow an approximate three-fold increase in production.

The Chattanooga plant is undergoing no physical expansion, but interior manufacturing facilities have been increased to the extent that productivity of the factory will be virtually doubled, he explained. In addition to compressor mechanisms, "water boy," portable water coolers will be produced.

Philco Promotes George

PHILADELPHIA — Raymond B. George, who for the past two years has been sales manager of the accessory division, has been promoted to the new post of sales promotion manager of Philco Corp.

Vilter Wage Plan--

(Concluded from Page 1, Column 3)

been made whereby the foundry men will receive a bonus based on the plus total poundage of usable castings produced during the month.

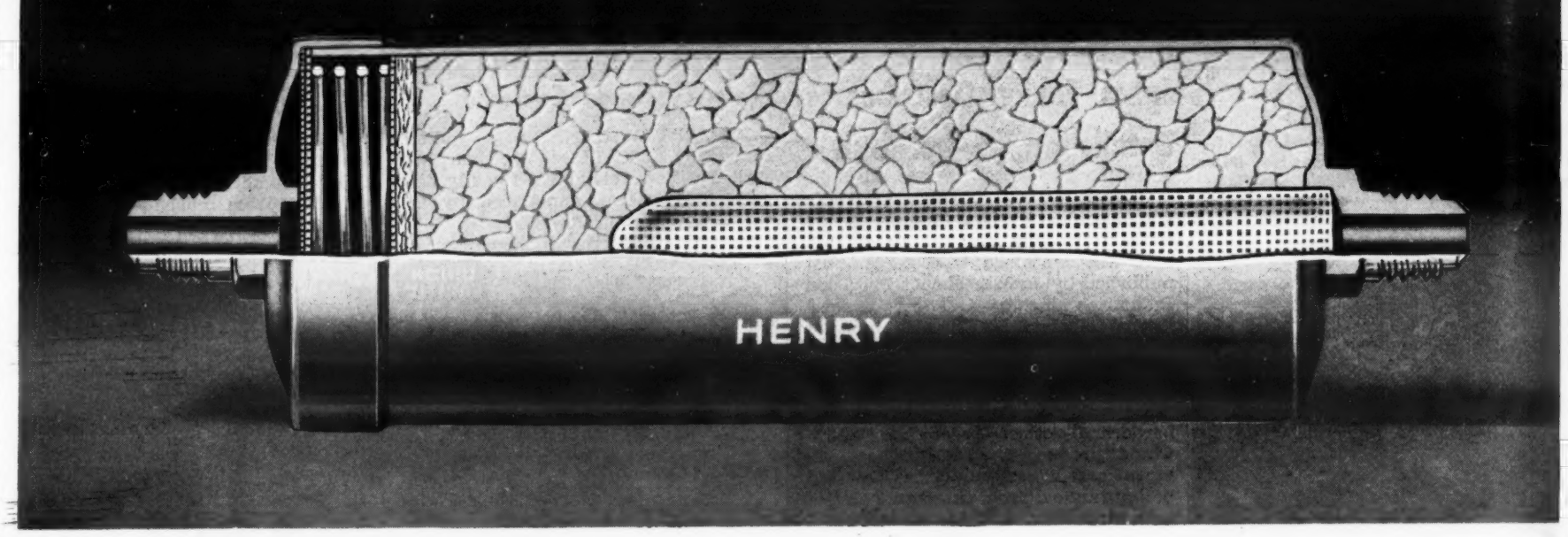
The company has also announced the appointment of Arthur A. Beck as advertising and public relations manager. Mr. Beck was formerly director of advertising for a Wisconsin daily newspaper.

Sporlan In New Bldg.

ST. LOUIS — Sporlan Valve Co. announces that it is now located in the new Sporlan building at 7525 Sussex Ave., St. Louis 17. The building contains executive and general offices and shipping and repair dept.

It costs no more-

...TO USE HENRY DRIERS

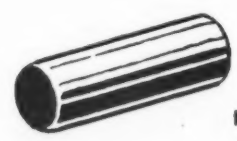


and you get these extra advantages...

THE PATENTED DISPERSION TUBE
Located at the inlet end, it distributes evenly and prevents "channeling." It insures full utilization of the entire Silica Gel volume. Pressure drop is less.

DEHYDRANT UNDER COMPRESSION SPRING
Keeps the Silica Gel tightly packed. This pressure prevents the Gel from self-abrading — stops "powdering." No clogging of screens, and no loose Gel can enter the refrigeration system.

PATENTED ABSO-DRY PROCESS
After unit is factory packed with Silica Gel, it is factory dried and charged with dehydrated air. With the audible "hiss" of escaping air when seal cap is removed on the job, you know that dehydrant is still dry and that there are no leaks in drier shell.

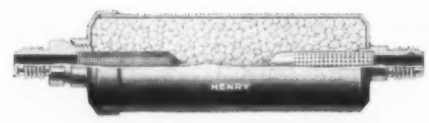


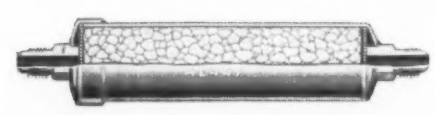
DRAWN BRASS SHELL
This costlier construction, by eliminating one end cap and one joint, lessens the possibility of leaks.

only Henry has a complete line

Leading Jobbers Recommend Henry Products Because They Are Interested In Giving You Greater Value For Your Money.

the wide range of Henry Driers includes the following:





SIZE CONNECTIONS — ¼" flare up to and including 2⅛" solder.
DEHYDRANT CAPACITY — 3 cu. in. up to and including 450 cu. in.
TONNAGE — Fractional up to and including 50 tons.

Other Henry Driers include models with felt sacks; with sintered metal filter discs; with dispersion tubes and special models for railroad and industrial uses.

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Control Devices, Valves, Driers, Strainers and Accessories for Refrigeration and Air Conditioning and Industrial Applications
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